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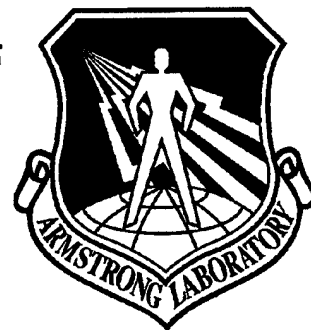
ACTIVE DUTY AIR FORCE BEHAVIORAL RISK FACTOR SURVEILLANCE PILOT PROJECT, 1995

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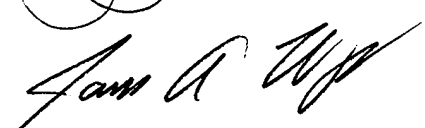BROOKS AIR FORCE BASE, TEXAS**

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The Office of Public Affairs has reviewed this technical report, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nationals.

This technical report has been reviewed and is approved for publication.

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13. ABSTRACT (Maximum 200 words)

Active Duty Air Force (ADAF) Behavioral Risk Factor Surveillance Pilot Project, 1995, provides results of a survey on the prevalence of behavioral risk factors among ADAF members. This study, conducted during July and August 1995, is the first USAF-wide survey to provide such data at the major command level. Results showed that the Air Force is currently meeting these national *Healthy People 2000* goals: overweight by body mass index, safety belt usage, child safety seat usage, ever having had a mammogram and breast exam, ever having had a Pap smear, and having had a Pap smear in the past three years. One major finding was the lower than expected prevalence of current smoking (reported by 22.4% of ADAF members). A second major finding concerned alcohol abuse behaviors. The prevalence of self-reported binge drinking was 26%. Chronic drinking (4.1% vs. 3.0% nationally) and drinking and driving (2.6% vs. 2.4% nationally) were not markedly different from US findings. Data also indicated that the Air Force has not met *Healthy People 2000* goals for periodic cholesterol testing, suggesting another opportunity for improvement. The recommendation is to institute an annual behavioral risk factor survey for the Air Force.

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CONTENTS

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SUMMARY

The Need

US Air Force (USAF) preventive medicine and public health policymakers need data to assess USAF-wide health promotion efforts, track progress toward meeting Air Force and national goals, and target interventions.

To help meet these needs, the Office for Prevention and Health Services Assessment (OPHSA) created a pilot project to develop an active duty Air Force (ADAF) behavioral risk factor surveillance system. This study is the first USAF-wide survey to provide behavioral risk factor data at the major command (MAJCOM) level. Specific, verifiable targets can be set using these data. The prevalence of risk factors and preventive health measures can be assessed at several levels (USAF, MAJCOM, within MAJCOM), and compared with findings from the United States (US) general population.

The Survey

The Behavioral Risk Factor Surveillance System (BRFSS) questionnaire is designed annually by the Centers for the Disease Control and Prevention (CDC) for use in its state-based national BRFSS program. The CDC BRFSS is the largest continuously conducted health survey in the world, and gathers data from US adults on behaviors and practices that are related to the leading causes of death in the nation. This AF pilot project used the core section of the BRFSS instrument, with minor modifications. Using the same survey methods and questionnaire as in the national BRFSS allows the Air Force to build on the strengths of the CDC program and benchmark USAF findings to a large body of civilian data.

The Results

• One of the most significant findings of the survey was the lower than expected prevalence of current smoking. Current smoking was reported by 22.4% of ADAF members, which is nearly identical to the most current published CDC BRFSS findings from 1993 (22.5%), and below the level found in the 1992 Department of Defense (DoD) Worldwide Drug and Alcohol Survey (29%). These data are consistent with a continuing decline in current smoking among ADAF personnel.

• While the data on current smoking are encouraging, findings on alcohol abuse behaviors are not. Results for alcohol abuse behaviors were either notably higher than US findings or unacceptably high in the face of Air Force standards and policies. Prevalence of self-reported binge drinking was 26%, vs. 14% nationally. While results for chronic drinking (4.1% vs. 3.0% nationally) and drinking and driving (2.6% vs. 2.4% nationally) are not markedly different from US findings, the findings are disturbing.

1

- The data show the Air Force has met *Healthy People 2000* goals in the following areas:
    - ◊ overweight (by body mass index)
    - ◊ safety belt usage
    - ◊ child safety belt usage
    - ◊ child safety seat usage
    - ◊ ever had a mammogram and breast exam
    - ◊ ever had a Pap smear
    - ◊ had a Pap smear in last 3 years

- Data indicated the Air Force has not met the Year 2000 goals for current smoking and periodic cholesterol testing. Although findings on use of child bicycle helmets were encouraging, data were insufficient to determine if the *Healthy People 2000* goal had been met.

- Although prevalence estimates for screening tests were generally higher in ADAF members than in the general US population, this study identified an opportunity for improvement in periodic cholesterol testing. The *Healthy People 2000* goal is to increase the proportion of adults whose cholesterol has been tested in the last 5 years to at least 75%. Using self-reported data, the USAF estimate was 71.6%, with only three of eight commands having point estimates above 75%.

Recommendations

Behavioral risk factors in the active duty USAF population should be measured continuously, so that both healthful and deleterious trends can be seen over time. By using the CDC BRFSS survey instrument and methods, the Air Force can take advantage of the CDC's expertise and remain on the leading edge of behavioral risk factor surveillance. This approach will allow comparison of ADAF findings to a large body of civilian health data, and provide objective data to evaluate the impact of prevention programs.

OPHSA recommends that this project be the first in an annual series of surveys, inaugurating a full-fledged Active Duty Air Force Behavioral Risk Factor Surveillance System.

INTRODUCTION

The Behavioral Risk Factor Surveillance System (BRFSS), coordinated by the Centers for Disease Control and Prevention (CDC) is a continuous, random-digit-dialed telephone survey of the US noninstitutionalized population aged ≥18 years. The survey is designed to determine the prevalence among adults of behaviors and practices - such as cigarette smoking, seat belt use, blood cholesterol screening, high blood pressure control, physical activity, weight control, alcohol use, and drinking and driving - that are related to the leading causes of death in the US. To maximize comparability, methods and questionnaires are standardized across participating states and over time. Currently the BRFSS is used by all 50 states, the District of Columbia, and three US territories, and is the largest continuously conducted telephone health survey in the world. In 1993 a total of 102,263 US residents participated in the survey. Results are used to assess risk for chronic diseases, identify trends in health-related behaviors, design and monitor health interventions, formulate policy and legislation for health initiatives, and measure progress toward achieving state and national health objectives.

Air Force preventive medicine and public health policymakers need data for use in targeting subpopulations, assessing the effectiveness of USAF-wide health promotion efforts, and tracking progress toward *Healthy People 2000* objectives. To help meet these needs, the Office for Prevention and Health Services Assessment (OPHSA) created a pilot project to develop an active duty Air Force behavioral risk factor surveillance system, using the CDC BRFSS as its model. The project was conducted through a collaboration between OPHSA, the University of Texas-Austin, and two CDC centers, the National Center for Environmental Health and the National Center for Chronic Disease Prevention and Health Promotion. Funding was provided by the Office of the USAF Surgeon General.

METHODS

Sampling

In March 1995, OPHSA obtained a data file containing demographics (e.g., name and rank) and assignment information (e.g., current base duty assignment) from Headquarters, Air Force Military Personnel Center (HQ AFMPC) at Randolph AFB, Texas. The following personnel were excluded from participation in the study: basic military trainees (BMTs) and other ADAF members in training status, because of behavior restrictions such as a ban on smoking, alcohol use, and driving in BMTs; members of the Air Force Office of Special Investigation, whose duty location may be classified; active duty USAF members with a high likelihood of impending personnel actions involving geographic movement, such as permanent change of station or separation from active duty; and general officers (for protocol reasons). All other ADAF members worldwide were included in the AFMPC data file. This large data file was merged with a smaller file containing telephone contact data, such as dialing sequences for overseas bases, etc.

The data set was stratified by major command (MAJCOM), gender, and rank group. The decision to use MAJCOM as the major stratification variable was largely informed by the organization of public health and health promotion within the Air Force. The chain of command for public health and health promotion activities originates in the USAF Surgeon General's office and then flows through the MAJCOM headquarters to individual bases. As a result of this organizational structure, MAJCOM-specific data is highly useful in planning and monitoring prevention programs in the Air Force. Eight MAJCOMs were used (ACC, AFMC, AMC, AF SPACECOM, AFSOC, PACAF, USAFE, and AETC), and service members were categorized by the MAJCOM of their base of assignment. (Please see Appendix D for explanation of MAJCOM and other abbreviations used in this report.)

Categorization of ADAF personnel based on duty location MAJCOM, rather than MAJCOM of assignment, was done for two reasons. First, each MAJCOM's health promotion and disease prevention programs are actually carried out at base level, and all personnel assigned to a base fall within the sphere of influence and responsibility of the base's prevention activities. This is analogous to the catchment area concept used by military Medical Treatment Facilities (MTFs). For example, an ADAF member administratively assigned to AFSOC but whose duty location was RAF Lakenheath UK would be categorized in this study as "USAFE," because the member would be in the catchment area of RAF Lakenheath, a USAFE base. The AFSOC member located at RAF Lakenheath cannot honestly be considered to be in the sphere of influence of the AFSOC health promotion and disease prevention activities, located at Hurlburt Field FL. Second, the behavior patterns of ADAF members are more likely to mirror those of coworkers at their duty location (e.g., RAF Lakenheath UK), rather than those of personnel at bases in their assigned MAJCOM (e.g., Hurlburt Field FL in case of AFSOC). This second point is especially true for personnel assigned to CONUS-based MAJCOMs (e.g., ACC, AETC), but who are actually located in OCONUS MAJCOMs (PACAF, USAFE).

<u>In short, categorizing active duty USAF members by the MAJCOM of their duty location is the most appropriate method if the purpose of the study is to target health promotion and disease prevention resources.</u>

Only ADAF members who were assigned to an Air Force military installation (e.g., base, air station) belonging to one of the above eight MAJCOMs were eligible for this survey. Three rank groups were used: junior enlisted (E1-E4); senior enlisted (E5-E9); and officers (O1-O6). Simple random sampling was then performed within each of the resulting 48 (8 MAJCOM x 2 gender x 3 rank) strata, with a predetermined number of members drawn from each stratum. Selection probabilities were unequal across the strata, because certain demographic groups, such as females, were sampled at rates in excess of their representation in the general population. This technique, known as oversampling, was used to ensure that adequate numbers of respondents would be available for subgroup analyses (e.g., prevalence of current smoking by gender). The total number of ADAF members chosen for the sample was 3,930. Please see Appendix A for a breakdown of the sample by MAJCOM.

Statistical consultants from Battelle Memorial Institute provided expert assistance in determining the number of active duty USAF members to be sampled from within each MAJCOM, gender, and rank group. This was done using nonlinear programming techniques, that solved for the number of ADAF members to be sampled in each stratum while simultaneously fixing a minimum number of subjects in each MAJCOM and each sampling stratum. The rationale was to maximize the opportunity for subgroup analyses (e.g., prevalence rates in female officers) if response rates were high and adequate numbers of subjects were interviewed.

Questionnaire

The survey instrument was a questionnaire designed by the Behavioral Risk Factor Surveillance (BRFS) Branch of the CDC's National Center for Chronic Disease Prevention and Health Promotion. This questionnaire is the backbone of the state-based Behavioral Risk Factor Surveillance System, coordinated at the national level by the CDC. The questionnaire development policy of the CDC BRFS Branch is to adopt, wherever feasible, questions used in national surveys such as the National Health and Nutrition Examination Surveys (NHANES) and the National Health Interview Survey (NHIS). Only questions from the core section were asked. A small number of questions were inappropriate for active duty military members (e.g., questions about availability of medical insurance, whether employed full time) and were not asked, and one question was added on recent TDY assignment. Appendix A contains detailed information on these minor modifications to the CDC BRFSS instrument. OPHSA obtained official clearance from HQ AFMPC to conduct an Air Force wide survey using the CDC BRFSS instrument.

The CDC BRFSS instrument is dynamic, with the questions that appear changing from year to year. It consists of: a set of fixed core questions, asked every year; rotating core questions, asked on odd or even numbered years; modules, that are topical blocks of questions states may ask to meet their surveillance needs; and state-added questions, that states design and analyze on their own. The 1995 core questions, used in the present study, did not contain questions on physical activity and weight control, whereas the 1996 instrument will. Appendix B contains the 1995 core questionnaire. Through expert panels and annual meetings with state BRFSS coordinators, the CDC is constantly refining and adapting the instrument to meet evolving state and national needs.

Data Collection, Processing, and Analysis

Preselected active duty USAF members were contacted by telephone during the workday at their worldwide duty locations and asked to participate in the survey after being assured their responses would be kept confidential. OPHSA retained a professional telesurvey organization, the Office of Survey Research (OSR) of the University of Texas-Austin, to accomplish the data collection using computer-assisted telephone interviewing (CATI). OSR has conducted all telephone interviewing for the Texas BRFSS since the state joined the CDC program in 1986. The majority of the telephone interviews were conducted during July and August 1995. A CATI data file without personal identifying information was then delivered to OPHSA, which forwarded it to the CDC for analysis. The total number of respondents in this data set was 1,931.

Consistent with CDC BRFSS survey methods, the civilian telesurvey personnel made numerous attempts to contact each ADAF member. The initial telephone call often directly reached the member, but in many cases this call reached an office secretary, who often provided valuable information on the member's whereabouts if he or she had moved, left for TDY travel, etc. Secretaries and other office members frequently passed messages to members of the sample. In these cases, where the member was not available at the initial call, a message was left to contact UT-Austin by collect call. In cases where the member was contacted but indicated he or she was too busy to complete the survey at that time, "call backs" were scheduled at the member's convenience. In all, 5 attempts were made to contact each member.

After the completion of all telephone interviews, the data set with all responses was checked using a computer software program provided by CDC. In some cases, this program identified "out of range" values requiring verification. When this occurred, members were contacted again and asked to confirm their original responses.

Post-stratification weighting was used to correct for sampling and non-sampling sources of error, as well as to adjust for differences in gender and rank distribution between the sample and MAJCOM and USAF populations. Sources of error included unequal selection probabilities across sampling strata and differential rates of non-response across sampling strata. The post-stratification variable used was a three-way classification variable denoting MAJCOM, rank group (junior enlisted, senior enlisted, and officers) and gender. Population counts, using data current at the time of survey, were obtained from the Human Resources Directorate, Armstrong Laboratory (Brooks AFB, Texas) and used to compute post-stratification weights as described by Aday.[1] A major benefit of the use of MAJCOM, rank, and gender in post-stratification is that this procedure corrects for important differences between the demographic makeup of the sample vs. the makeup of the total ADAF population. All prevalence estimates presented in this report are weighted.

CDC analyzed the data using SESUDAAN, a statistical package for analyzing complex sample-survey data. SESUDAAN enables computation of standard errors and prevalence estimates for weighted survey data.[2] All confidence intervals are 2-sided, with an α level set at .05. This assured a 95% likelihood that the true prevalence of each risk factor was within the upper and lower limits of the confidence interval.

The most recently published data from CDC's BRFSS program are for 1993, and provide state-based prevalence estimates and 95% confidence intervals for each risk factor. These prevalence estimates are weighted averages for each state, computed using response rate data and current state population figures from the US Bureau of the Census. CDC uses the median value of the weighted averages of the 50 US states and the District of Columbia as a "national" prevalence estimate. The term, "US median," as used in this report, refers to this median of the 50 states' weighted averages. In this report, MAJCOM and USAF estimates are compared with results from the 1993 CDC BRFSS,[3] which are the most current published data available.

Over 30 behavioral risk factors and clinical preventive services were assessed by the CDC BRFSS instrument. These are defined and described below.

Definitions of Risk Factors and Preventive Health Measures

General health status reported general health status is very good or excellent

Physical health not good reported mean number of days in past 30 days physical health was not good

Mental health not good reported mean number of days in past 30 days mental health was not good

Activities limited reported mean number of days in past 30 days activities were limited due to poor physical or mental health

Hypertension awareness reported ever told blood pressure high by a health professional

Hypertension screening reported blood pressure checked within the past 2 years

Cholesterol awareness reported ever told cholesterol high by a health professional

Cholesterol screening a) reported ever had cholesterol checked
b) reported had cholesterol checked within the past 5 years

Diabetes awareness reported ever told have diabetes by a health professional

Lack of safety belt usage a) reported sometimes, seldom, or never use safety belts
b) reported does not always wear a safety belt

Child safety belt reported oldest child aged 5-14 always or nearly always uses safety belt

Child safety seat reported oldest child aged 4 or under always or nearly always uses safety seat

Use of child bicycle helmets reported oldest child aged 5-14 always or nearly always uses helmet when riding bicycle

Smoke detectors reported checked all smoke alarms in home within the past year

Current smokers reported ever smoked 100 cigarettes and a current smoker

Ever smoked reported smoked at least 100 cigarettes in lifetime

Current drinkers reported had alcoholic beverages during the past month

7

Binge drinking	reported had 5 or more drinks on at least one occasion during the past month
Chronic drinking	reported 60 or more drinks during past month
Drinking and driving	reported driving after having too much to drink, one or more times during past month
Rectal exam	reported had rectal exam within past year, aged 40 and older
Overweight: by body mass index	body mass index (from reported height and weight) ≥ 27.8 for males and 27.3 for females
Overweight: by median	reported weight for height greater than 120% of the median, using 1959 Metropolitan Life Insurance Company tables
AIDS: encourage teen condom use	would encourage sexually active teenagers to use a condom
AIDS: condom effectiveness	believes condoms are very effective in preventing AIDS
AIDS blood test	reported ever had blood tested for AIDS virus infection
Chances of getting AIDS	believes personal chances of getting AIDS virus are high
Mammogram-females	a) reported ever had a mammogram, aged 18 and older b) reported ever had a mammogram, aged 40 and older
Breast exam-females	a) reported ever had a breast exam by a health professional, aged 18 and older b) reported ever had a breast exam by a health professional, aged 40 and older
Mammogram and breast exam-females	reported ever had a mammogram and a breast exam, aged 40 and older
Pap smear	a) reported ever had a Pap smear b) reported ever had a Pap smear, women with intact uterine cervix c) reported had Pap smear within last 3 years, women with intact uterine cervix

These risk factors and preventive health measures directly measure progress toward the following *Healthy People 2000* goals:[4]

- Raise the percentage of adults who have had their cholesterol checked within the last 5 years to at least 75%

- Decrease the proportion of adults and children (aged 5-14) who do not always use a safety belt to less than 15%

- For children aged 4 and under, increase the use of child safety seats to at least 95%

- Increase to at least 50% the percentage of bicyclists (of any age) who use helmets when riding

- Lower the prevalence of smoking among adults to 20% or lower (goal written specifically for military populations)

- Lower the percentage of adults whose body mass index is ≥27.8 (males) or ≥27.3 (females) to no greater than 20%

- Increase to at least 80% the proportion of women aged 40 and older who have ever had a mammogram and a clinical breast exam

- Increase the percentages of women with an intact uterine cervix who have: ever had a Pap smear to at least 95%; and who have had a Pap smear within the last 3 years to at least 85%

RESULTS

Response Rates

Widely divergent results were obtained using two popular methods for calculating response rates (see Appendix A). One formula, using the "upper bound" method, gave a response rate of 98%, while the other formula gave a rate of 68%. Although several methods are available to calculate response rates for surveys, it is difficult to apply some of them to this survey for several reasons. First, a large proportion of the active duty Air Force population is highly mobile, characterized by frequent TDY travel and deployments. The algorithm used by HQ AFMPC to choose the sampling frame could not predict sudden personnel movements such as these. Many individuals who would simply be designated as "non-responders" by traditional response rate methods were, in fact, never contacted because they were not available to speak to the UT-Austin OSR staff during the interview period. Second, despite the fact that the sampling method attempted to minimize the impact of more predictable forms of geographic personnel movement, such as PCS moves, a substantial number of ADAF members - particularly in USAFE - had moved from their duty stations between the time the sample was drawn (March 1995) and the interviewing (July/August 1995). Frequent deployments and base closures in Europe near the interviewing period led to large scale movements of ADAF personnel, in some cases involving entire bases. A completely unpredictable factor in CONUS was the advent of a major hurricane striking Hurlburt Field during the interview period, making it difficult to contact AFSOC personnel.

9

As evidenced by the 98% response rate using the "upper bound" formula, the rate of non-response once an ADAF member was successfully contacted was actually quite low. <u>Staff interviewers at OSR characterized the ADAF survey participants as very cooperative once the purpose of the survey and the confidential nature of responses were explained.</u> Differential response rates across sampling strata were accounted for in the data analysis.

Although UT-Austin staff successfully interviewed only 49% of the members of the sample, the demographic makeup of the respondents did not differ meaningfully from the sample, with the exception that a slightly lower percentage of respondents were from USAFE. Approximately 7% of respondents were from USAFE, while 11% of the sample members were from USAFE. No other notable differences were found in MAJCOM, gender, or rank distributions.

Appendix A provides response rates for each MAJCOM, using the two formulas noted above, as well as a detailed breakdown of reasons for non-response by command. Appendix C contains extensive demographic breakdowns of the USAF total population, survey sample, and survey respondents.

Detailed Survey Findings

Health Status

General Health Status

The percentage of ADAF members rating their own health as "very good" or "excellent" ranged from 71.0% (USAFE) to 78.5% (AETC), with an Air Force wide result of 75.6% (Tables 1 and 10). No comparison data from the 1993 state-based BRFSS are available.

Tables 6 and 8 show gender-specific estimates of general health status. No marked differences are noted, although in some commands the male and female point estimates differ somewhat.

Physical Health

Air Force members reported an average of 1.3 days over the last month in which their physical health was "not good" (Tables 1 and 10). MAJCOM results ranged from 0.9 days (AETC) to 1.7 days (USAFE). By way of comparison, CDC 1993 BRFSS state results ranged from 1.6 to 4.1 days, with a US median of 2.9 days.

Mental Health

Air Force wide, the reported mean number of days in which mental health was "not good" over the last month was 2.3 (Tables 1 and 10). MAJCOM results ranged from 2.0 days (AFMC) to 2.8 days (USAFE). The 1993 CDC BRFSS results ranged from 1.4 to 4.0 days, with a US median of 2.8 days.

Activity Limitations

To assess the impact of self-reported poor physical and mental health, survey participants were also asked how many days over the last month their activities were limited by health problems. MAJCOM results ranged from 1.3 days (AMC) to 3.0 days (AFMC), with a USAF wide result of 1.8 days (Tables 1 and 10). For comparison, 1993 CDC BRFSS state results ranged from 0.7 to 2.7 days, with a US median of 1.6 days.

Hypertension Awareness and Screening

The percentage of ADAF members reporting they had ever been told by a health professional that they had high blood pressure was 10.5%, with MAJCOM results ranging from 9.6% (ACC) to 13.0% (USAFE) (Tables 2 and 11). CDC 1993 BRFSS results ranged from 16.8% to 29.8%, with a US median of 21.7%.

Air Force wide, the proportion reporting that their blood pressure had been checked in the last 2 years was 98.2%, with MAJCOM results ranging from 96.8% (ACC) to 100% (USAFE) (Tables 2 and 11). Comparison data from the 1993 CDC BRFSS showed a range from 90.3% to 96.5%, with a US median of 93.5%.

Tables 6 and 8 show no apparent gender differences in the prevalence of hypertension awareness or screening.

Cholesterol Awareness and Screening

The percentage of respondents reporting they were ever told by a health professional that their cholesterol level was high ranged from 14.2% (AETC and USAFE) to 20.9% (AFSOC), with an Air Force wide prevalence of 16.6% (Tables 2 and 11). In 1993, CDC BRFSS results ranged from 11.9% to 23.3%, with a US median of 19.2%.

Questions were also asked about cholesterol screening tests. Air Force wide, the proportion reporting they had ever had their cholesterol tested was 75.0%, with MAJCOM results ranging from 67.0% (ACC) to 82.6% (AMC) (Tables 2 and 11). State based CDC BRFSS results from 1993 ranged from 59.5% to 75.6%, with a US median of 67.9%.

A slightly lower proportion of ADAF members, 71.6%, reported having their cholesterol checked within the last 5 years (Tables 2 and 11). MAJCOM results ranged from 62.7% to 80.8%. 1993 CDC BRFSS data ranged from 57.0% to 73.4%, with a US median of 65.0%. Since the *Healthy People 2000* goal for the proportion having cholesterol testing every 5 years is ≥75%, the Air Force in the aggregate appears to be fairly close to meeting the Year 2000 goal. Two

MAJCOMs, AFMC and AMC, have point estimates (80.3% and 80.8%) that exceed the 75% goal, but the 95% confidence intervals around these estimates include 75.0%. From a statistical perspective, these data are insufficient to say whether the Air Force has met this Year 2000 goal.

Tables 6 and 8 show no pattern of gender differences in cholesterol screening.

Diabetes Awareness

Overall, a very small proportion (0.3%) of USAF active duty members reported ever being told by a health professional that they have diabetes (Tables 2 and 11). MAJCOM results ranged from 0% (ACC, AFSOC, PACAF, USAFE) to 1.3% (AFMC). CDC 1993 BRFSS results ranged from 2.7% to 6.3%, with a US median of 4.5%.

No substantial gender differences in diabetes awareness are seen in Tables 6 and 8.

Safety Belt Usage

Air Force wide, 1.6% of respondents reported that they used safety belts only sometimes, seldom, or never (Tables 2 and 11). (This means that the vast majority use seat belts always or nearly always.) MAJCOM results ranged from 0% (USAFE) to 3.2% (AMC). CDC BRFSS results from 1993 ranged from 3.9% to 52.0%, with a US median of 20.8%.

Using a more liberal definition of seat belt nonusage - a report of not always wearing a safety belt - 9.8% of ADAF members would be classified as nonusers (Tables 2 and 11). With this definition, MAJCOM results ranged from 6.9% (USAFE) to 11.7% (AFSOC). CDC 1993 BRFSS results ranged from 10.1% to 74.8%, with a US median of 36.3%. The *Healthy People 2000* goal associated with this risk factor is a prevalence of seat belt nonusage less than 15%. Since the confidence interval for the Air Force wide estimate does not include 15.0%, the Air Force has met this Year 2000 goal.

Tables 6 and 8 show no apparent gender differences in lack of seat belt usage.

Child Safety Belt, Safety Seat, and Bicycle Helmet Use

When ADAF members were asked about use of safety belts for their children aged 5-14, 97.4% reported that the belts were always or almost always used. MAJCOM results ranged 94.4% (AETC) to 100% (PACAF and USAFE) (Tables 4 and 13). No results from the 1993 CDC BRFSS were available for comparison. The *Healthy People 2000* goal is for at least 85% of children and adults to use safety belts. Since the 95% confidence interval around the USAF estimate excludes 85.0%, the Air Force has met this Year 2000 goal.

Parents of children aged 4 and under were asked about use of child safety seats. Air Force wide, 99.3% indicated that they used child safety seats always or nearly always, with MAJCOM results ranging from 97.3% (PACAF) to 100% (AETC, AFMC, and USAFE) (Tables 4 and 13). The Year 2000 national goal is to increase use of safety seats in children aged 4 and under to at least 95%. The 95% confidence interval around the USAF estimate excludes 95.0%, so the Air Force has met this *Healthy People 2000* goal.

Parents of children aged 5-14 who ride bicycles were asked about their children's use of bicycle helmets. Approximately half - 55.3% - reported their child always or nearly always uses a helmet when riding a bicycle. MAJCOM results ranged from 39.6% (AFSOC) to 64.7% (AF SPACECOM) (Tables 4 and 13). *Healthy People 2000* has a goal of increasing bicycle helmet use to at least 50%, and the 95% confidence interval around the Air Force estimate overlaps with 50.0%. From a statistical perspective, these data are insufficient to say whether the Air Force has met this Year 2000 goal. The 95% confidence interval for AF SPACECOM, however, indicates that this MAJCOM has met the *Healthy People 2000* goal.

Smoking

Ever Smoked

ADAF survey participants were asked about ever smoking, which is defined by the CDC as having smoked 100 cigarettes in a lifetime. The prevalence of ever smoking was 39.7%, with MAJCOM results ranging from 34.2% (AFMC) to 45.0% (ACC) (Tables 2 and 12). CDC 1993 BRFSS results ranged from 30.9% to 57.6%, with a US median of 49.0%.

Current Smokers

Current smoking is defined by the CDC as having ever smoked 100 cigarettes and smoking now. This definition includes regular and irregular smokers. Overall, 22.4% of ADAF members reported current smoking, with MAJCOM results ranging from 15.1% (AFMC) to 29.0% (ACC) (Tables 2 and 12). 1993 state based BRFSS results ranged from 14.5% to 30.1%, with a US median of 22.5%. The *Healthy People 2000* goal for cigarette smoking - no more than 20% in military populations - appears to be within sight at the Air Force level. Moreover, MAJCOM results show that AFMC is very close to meeting the Year 2000 goal, with the AFMC 95% confidence interval almost excluding 20.0%.

Tables 6 and 8 do not generally show a strong pattern of gender difference in current smoking. However, in ACC, the command with the highest smoking prevalence, a substantially larger percentage of males report current smoking as compared with females. There is also a striking preponderance of male smokers noted in USAFE, where the percentage of female smokers is very low.

Alcohol Consumption

Current Drinkers

The percentage of survey participants who reported current drinking (consumed alcohol in last 30 days) ranged from 68.4% (AETC) to 77.8% (USAFE), with a USAF prevalence of 72.3% (Tables 3 and 12). By way of comparison, the 1993 CDC BRFSS results ranged from 27.4% to 69.6%, with a US median of 51.6%.

Binge Drinking

The CDC defines binge drinking as consuming 5 or more drinks on at least one occasion during the past month. The proportion of ADAF reporting binge drinking was 26.2%, with MAJCOM results ranging from 20.3% (AETC) to 34.5% (AFSOC) (Tables 3 and 12). State based results from the 1993 CDC BRFSS ranged from 4.2% to 22.8%, with a US median of 14.2%.

Tables 7 and 9 show a consistent gender pattern in binge drinking, with the prevalence for males substantially higher than for females.

Chronic Drinking

Chronic drinking (60 or more drinks during the past month) was reported by 4.1% of active duty Air Force members (Tables 3 and 12). MAJCOM results ranged from 2.3% (AF SPACECOM) to 7.9% (USAFE). 1993 CDC BRFSS results ranged from 1.4% to 6.1%, with a US median of 3.0%.

Tables 7 and 9 show chronic drinking is noticeably more prevalent in males.

Drinking and Driving

When asked if they had driven in the last month after having too much to drink, 2.6% of ADAF members reported they had, with MAJCOM results ranging from 0.7% (AFMC) to 4.4% (ACC and AFSOC) (Tables 3 and 12). State based 1993 CDC BRFSS results ranged from 0.8% to 5.3%, with a US median of 2.4%.

Tables 7 and 9 do not demonstrate a consistent gender pattern for drinking and driving.

Overweight

By Body Mass Index

Using self-reported height and weight, body mass index (weight in kg divided by the square of height in meters) was computed for each respondent. The percentage of active duty USAF members meeting the criteria for overweight was 13.4%, with MAJCOM results ranging from 9.9% (AETC) to 17.6% (AFMC) (Tables 3 and 12). CDC BRFSS results from 1993 ranged from 20.2% to 31.7%, with a US median of 25.5%. The *Healthy People 2000* goal for obesity (by body mass index) is $\leq20\%$, and the Air Force has met this goal, since the 95% confidence interval excludes 20.0%.

By Median

Defining overweight using life insurance actuarial data and self-reported height and weight, the prevalence of overweight among ADAF members was 19.1% (Tables 3 and 12). MAJCOM results ranged from 14.2% (AETC) to 25.4% (AFMC). State based CDC BRFSS results from 1993 ranged from 24.0% to 36.3%, with a US median of 30.1%.

Tables 7 and 9 show that in almost every MAJCOM overweight is much more common in males.

AIDS

Encourage Teen Condom Use

The percentage of active duty USAF members reporting they would encourage a sexually active teenager to use condoms was 91.7%, with MAJCOM results ranging from 89.9% (AFMC) to 96.0% (USAFE) (Tables 3 and 12). CDC BRFSS results from 1993 ranged from 85.7% to 94.9%, with a US median of 91.8%.

Condom Effectiveness

Air Force wide, 38.6% of ADAF members believed that condoms were very effective in preventing transmission of the AIDS virus (Tables 3 and 12). MAJCOM results ranged from 35.6% (AMC) to 48.4% (USAFE). 1993 CDC BRFSS results ranged from 17.7% to 39.2%, with a US median of 25.5%.

AIDS Blood Test

Nearly all ADAF personnel - 96.4% - reported that they had ever had their blood tested for the virus that causes AIDS. MAJCOM results were also consistently high, ranging from 94.8% (AMC) to 99.6% (PACAF) (Tables 3 and 12). State based 1993 CDC BRFSS results were markedly lower, ranging from 15.1% to 39.5%, with a US median of 25.0%.

15

Chances of Getting AIDS

When asked about their personal risk of getting AIDS, 2.2% of active duty Air Force members reported their risk was high (Tables 3 and 12). MAJCOM results ranged from 0.9% (AFSOC) to 3.1% (AETC). CDC BRFSS results from 1993 ranged from 0.8% to 3.8%, with a US median of 2.1%.

Cancer Screening and Women's Health

Rectal Exam

When male and female ADAF members aged 40 and older were asked if they ever had a digital rectal exam, 90.6% indicated they had, with MAJCOM results ranging from 80.1% (PACAF) to 100% (USAFE) (Tables 5 and 14). CDC 1993 BRFSS results ranged from 24.5% to 51.6%, with a US median of 39.8%.

Tables 7 and 9 do not show any clear gender difference in the prevalence of rectal exams.

Mammogram-Females

Female active duty Air Force members were asked if they ever had a mammogram. Among ADAF women aged 18 and older, 29.9% reported they had, with MAJCOM results ranging from 20.6% (ACC) to 36.7% (AMC) (Tables 5 and 14). Among women aged 40 and older, 94.4% indicated they had, although MAJCOM-specific results could not be reliably computed due to small numbers of women aged 40 and older in each of the particular commands. 1993 BRFSS results for women aged 18 and older ranged from 46.8% to 59.0%, with a US median of 39.8%. For women aged 40 and older, 1993 CDC BRFSS results ranged from 68.5% to 85.7%, with a US median of 77.9%.

Breast Exam-Females

Female ADAF members were asked if they ever had a clinical breast examination. Among active duty women aged 18 and older, 95.1% reported they had, with MAJCOM results ranging from 87.4% (PACAF) to 100% (AF SPACECOM, AFSOC, USAFE) (Tables 5 and 14). Among women aged 40 and older, 98.6% reported they had. MAJCOM-specific results could not be reliably computed due to small numbers of women aged 40 and older in each of the particular commands (Tables 5 and 14). 1993 CDC BRFSS results for women aged 18 and older ranged from 82.6% to 94.3%, with a US median of 89.5%. For women aged 40 and older, state based CDC BRFSS results from 1993 ranged from 81.6% to 95.0%, with a US median of 89.8%.

Mammogram and Breast Exam-Females

ADAF women aged 40 and older were asked if they ever had a mammogram and a clinical breast exam. Air Force wide, 93.1% indicated they had, while MAJCOM-specific results could not be reliably computed due to small numbers of women aged 40 and older in each of the particular commands. 1993 CDC BRFSS results ranged from 63.6% to 81.8%, with a US median of 73.4%. The *Healthy People 2000* goal for women aged 40 and older ever having a mammogram and a breast exam is ≥80%. Since the 95% confidence interval around the Air Force estimate excludes 80.0%, the Air Force has met this Year 2000 goal.

Pap Smear

All active duty USAF women were asked if they ever had a Pap smear. Essentially all - 98.6% - indicated they had, with MAJCOM results ranging from 94.3% (AFMC) to 100% (AF SPACECOM, AFSOC, and USAFE) (Tables 5 and 14). State based results from the 1993 CDC BRFSS ranged from 85.4% to 96.4%, with a US median of 93.4%.

Active duty women with an intact uterine cervix were asked if they ever had a Pap smear. Again, nearly all - 98.8% - reported they had (Tables 5 and 14). MAJCOM results ranged from 94.1% (AFMC) to 100% (AF SPACECOM, AFSOC, PACAF, and USAFE). 1993 CDC BRFSS results ranged from 84.3% to 96.6%, with a US median of 93.7%. The *Healthy People 2000* goal for women with an intact uterine cervix ever having a Pap smear is ≥95%. Since the 95% confidence interval around the USAF estimate excludes 95.0%, the Air Force has met this Year 2000 goal.

Finally, ADAF women with an intact uterine cervix were asked if they had a Pap smear within the last 3 years. Overall, 97.8% reported they had, with MAJCOM results ranging from 93.1% (AFMC) to 100% (AFSOC) (Tables 5 and 14). No results from the 1993 CDC BRFSS were available for comparison. The *Healthy People 2000* goal for women with an intact uterine cervix having a Pap smear within the last 3 years is ≥85%. Since the 95% confidence interval around the ADAF estimate excludes 85.0%, the Air Force has also met this Year 2000 goal.

DISCUSSION

This pilot project represents the first effort toward worldwide behavioral risk factor surveillance among active duty Air Force members, using the same methods and survey instrument as the CDC BRFSS. The self-reported data generally indicate very high prevalence of preventive health measures and low prevalence of behavioral risk factors. However, the data identify numerous opportunities for targeted public health intervention and point to the need for continued surveillance at the MAJCOM and USAF levels to track progress toward national and Air Force goals.

Since ADAF members were categorized by the MAJCOM of their duty location (rather than MAJCOM of assignment), findings from different MAJCOMs should be compared to each other cautiously and only with this fact in mind. The purpose of this study was not to compare MAJCOMs to each other, but to provide data necessary for each MAJCOM to target its health promotion and disease prevention resources.

Data Strengths

A major strength of the survey is that it was conducted using the same questionnaire and the same mode of administration (telephone interview) as in the CDC BRFSS program. The organization contracted to conduct the interviews has performed this function for the Texas state BRFSS for nearly 10 years. Given the parallel methods, it seems fair to directly compare these data with those obtained in the CDC BRFSS as well as to use data to assess progress toward national Year 2000 goals, as the US Public Health Service does with CDC BRFSS data.

Major Findings

A very large number of comparisons are possible using these data: among MAJCOMs; within MAJCOMs; between USAF and CDC BRFSS estimates; and between USAF estimates and national Year 2000 goals. When these dozens of comparisons are examined, several important findings emerge:

• Data generally indicate good health status across all MAJCOMs, but it is not at all reassuring that days of poor mental health per month and days of limited activity per month differ so little from US median values.

• It is somewhat surprising that the percentage of ADAF personnel rating their health status as very good or excellent is not higher.

• Prevalence of behavioral risk factors was in general noticeably lower among ADAF, with the exception of self-reported elevated cholesterol, cigarette smoking, and alcohol abuse behaviors.

• Prevalence of current smoking was remarkable in that the ADAF estimate was nearly identical to the 1993 CDC BRFSS US median. This is counter to the widely held view that current smoking is more prevalent in the active duty Air Force population.

• Preventive health measures (screening tests) were in general appreciably more prevalent among active duty USAF.

Cigarette Smoking

Perhaps one of the most significant findings of the survey was the declining current smoking prevalence. While the 22.4% Air Force wide result may surprise some, it actually appears quite plausible when viewed in a larger context. The 1992 DoD Worldwide Drug and Alcohol Survey[5] found the prevalence of current smoking was 29.2% among ADAF personnel. The DoD survey used a slightly different definition of current smoking, and had a slightly different sample, but these data are consistent with a substantial decline in current smoking in the active duty Air Force population between 1992 and 1995. During this same period, the active duty Air Force population was reduced in size by nearly 26% (from approximately 486,000 to 360,000), and it has been proposed that a large percentage of those individuals leaving active duty during this time were current smokers. The findings on ever smoking from the current survey support this view.

USAF prevalence of ever smoking was 39.7%, nearly 10% lower than the CDC BRFSS US median estimate of 49.0%. If the decline in current smoking were due to a large number of smokers quitting but remaining in the service, the expected results would be a high percentage of ever smokers accompanied by a low percentage of current smokers. However, a low percentage of ever smokers was observed. It would thus appear that many current smokers have left active duty service and their replacements consist mainly of never smokers. If this is true, downsizing *per se* may account for a large proportion of the decline in current smoking. Air Force wide anti-smoking policy initiatives were also undertaken during this period. In addition, the active duty Air Force population had already seen a drop in current smoking during the period from 1982 to 1992, from approximately 43% to 29%. The present findings, then, are consistent with a continuing downward trend, and give reason to hope that the *Healthy People 2000* goal for military populations (≤20%) can be reached.

Alcohol Abuse

While the data on current smoking are encouraging, this is not the case for data on alcohol abuse behaviors. Results for alcohol-related risk factors were either notably higher than US median findings or unacceptably high in the face of Air Force standards. Findings for of both current drinking (72% vs. 52%) and binge drinking (26% vs. 14%) were markedly higher in the ADAF population, as compared to CDC BRFSS data. While the difference between the USAF estimates for chronic drinking (4.1% vs. 3.0%) and drinking and driving (2.6% and 2.4%) are not substantially different from the US median results, these data are hardly reassuring given Air Force standards and policies.

19

Screening Tests

Although prevalence of screening tests was higher among ADAF than the general US population, this survey found specific opportunity for improvement in the area of periodic cholesterol testing. The *Healthy People 2000* goal is that at least 75% of adults should have their cholesterol tested every 5 years, and the ADAF estimate was 71.6%, with the largest command, ACC, having a prevalence of 62.7%. Only 3 of 8 major commands have point estimates above 75%.

The problem with periodic cholesterol testing may lie more in communicating results rather than in actual performance of the testing. For example, USAF wide only 75.0% of ADAF personnel reported they had ever had their cholesterol tested. It is plausible that the true proportion may actually be closer to 100%, but that in many cases the results of the tests were never communicated to the members. In such cases, the end result is nearly the same as if testing was never accomplished, because the active duty members have no knowledge the test was done. From a public health perspective, cholesterol testing without communication of results is of dubious value.

Other *Healthy People 2000* Goals

The Air Force has not met the two *Healthy People 2000* goals discussed thus far: current smoking and cholesterol testing every 5 years. However, the Air Force did meet seven of the eight other Year 2000 goals directly measured by the CDC BRFSS questionnaire. Specifically, the ADAF estimates indicate the following objectives have been accomplished:

- overweight (by body mass index) ≤20%
- lack of safety belt usage (not always using safety belt) <15%
- child safety belt usage (always or nearly always) ≥85%
- child safety seat usage (always or nearly always) ≥95%
- ever had mammogram and breast exam (women 40 and older) ≥80%
- ever had a Pap smear (with uterine cervix, women 18 and older) ≥95%
- had a Pap smear in last 3 years (with uterine cervix, women 18 and older) ≥85%

While the data indicate the Air Force has met the *Healthy People 2000* goal for safety belt usage, the finding that nearly 10% of ADAF members report not always wearing their safety belt still provides an important opportunity for public health intervention. Because this finding is based on self-report, as are all results in this study and the CDC BRFSS, the prevalence of safety belt non-usage may actually be higher.

The ADAF results for the eighth Year 2000 objective (use of child bicycle helmets always or nearly always) were only slightly different from the 50% goal, but the data are insufficient to comment on the statistical significance of the difference.

Study Limitations and Proposed Remedies

Substantial variation between the MAJCOMs was noted, with results differing twofold or more in some cases. Although a much larger total sample size is needed to obtain MAJCOM-specific results at an acceptable level of precision, the investment in this larger sample seems warranted given the variability between commands. Heterogeneity was noted for important risk factors such as current smoking, periodic cholesterol screening, alcohol abuse behaviors, and overweight. Unfortunately, it was not possible to contact as many ADAF women over the age of 40 as had been planned, and as a result no MAJCOM-specific mammography or breast examination analyses were possible. Future surveys will need to have a larger number of potential female respondents in this age group. In some cases substantial gender differences were apparent *within* MAJCOMs, such as the large male-female dissimilarity in current smoking in ACC. These data were not entirely adequate to evaluate gender differences within commands, and some inadequacies appeared in the MAJCOM comparisons, due to difficulty in conducting workplace telephone interviews among ADAF personnel worldwide. It is apparent that a larger list of potential survey participants is needed in future behavioral risk factor surveillance efforts, in order to accommodate the difficulty in interviewing highly mobile populations, such as USAFE members.

A major reason for the difficulty in contacting ADAF members in the current study is that much of the critical information - such as duty telephone number - had changed between the time OPHSA received personnel data from HQ AFMPC and the time UT-Austin began telesurvey interviewing. During the nearly four months that elapsed between the production of the original worldwide ADAF data file and the beginning of the telephone interviewing, many personnel changed duty location, retired, separated from the Air Force, or changed duty telephone number. Since the HQ AFMPC data is updated on a *daily* basis, it is critical to minimize the interval between generation of the personnel data file and the onset of any telephone interviewing that uses the AFMPC data.

A possible criticism of the current study is that the ADAF members were called at their duty location, rather than at home. However, OPHSA was strongly urged by the Personnel Survey Branch at HQ AFMPC - a group that routinely conducts Air Force-wide surveys of active duty members for the USAF Chief of Staff - to contact the Air Force members at work, based on their consistent finding that this strategy resulted in higher participation rates than home interviews. Moreover, HQ AFMPC experience has shown that the validity of home telephone numbers in Air Force-level databases is highly questionable. Unfortunately, base- and unit-level information, such as from recall rosters, is not available for USAF-wide surveys.

Another potential criticism concerns the truthfulness of service members' responses to sensitive questions, such as current cigarette smoking. Careful examination shows the data do not support this criticism. It seems implausible that active duty Air Force personnel would admit to activities such as drinking and driving and binge drinking, at rates nearly identical to the general US population, while lying about current smoking and other less sensitive issues. Moreover, any pressures to underreport socially undesirable behaviors also exist to some extent in the general

21

US population, and would downwardly bias the CDC BRFSS findings as well. Aside from the issues of intentional misrepresentation, systematic underestimation of weight by overweight individuals is a widely recognized phenomenon, and for this reason the prevalence estimates for overweight should be seen as *conservative* (i.e., lower than true prevalence) and interpreted with caution.[6] (The same holds true for the CDC BRFSS data provided in this report for comparison.)

It must be emphasized that, in making comparisons between ADAF BRFSS results and those from the general US population, the purpose is only to provide a context for the Air Force data. The purpose is *not* to imply that all such comparisons are "fair" or unbiased. There are many important demographic differences between the active duty USAF population and the US general population.

These differences may play a large part in explaining some of the findings of the present study. For example, the ADAF population is younger than the general US population. Thus, it would be expected that a survey of ADAF service members would find a lower prevalence of age-related illnesses, such as hypertension and diabetes. From a strictly demographic perspective, higher prevalence of both binge drinking and drinking and driving would be expected in our younger population. Since many of the females on active duty in the Air Force are in their 20's and 30's, it would be expected that the chances a woman of any age has ever had a mammogram would be much lower than in the general US population, where the "average" female is substantially older.

The Air Force has dress and appearance standards, which lead to a lower prevalence of overweight among ADAF members as compared with the general US population. These are only a few examples of biases which must be kept in mind when considering the findings of this study.

In some cases where demographic dissimilarities and other biases would be expected to produce relatively large USAF/US differences, relatively small ones were found. With the above biases noted, some of the findings are troubling. For example, given the military's careful selection process for healthy individuals, why is there so little difference between the reported number of days of activity limitation per month (and reported days of poor mental health) in the ADAF population and the general US population? Why is the percentage of ADAF members reporting very good or excellent health only 76%? Given Air Force standards and policies, why is the percentage of active duty USAF members who report drinking and driving not different from that in the general US population?

Future Options

A number of options are available for behavioral risk factor surveillance in the ADAF population in future years. To begin with, the current study was conducted as a point prevalence survey, meaning that it measured the prevalence of behavioral risk factors at a point in time. The CDC BRFSS is conducted by the states on a year-round basis, with a quota of interviews conducted per month to meet an annual goal. Conducting this surveillance on a year round basis would

have the advantage of avoiding seasonal bias, but would probably be unworkable because of geographic movement of sample members, unless each months' sample was drawn at the beginning of the month. Because of the many steps involved in sampling and producing the dialing roster, it would likely take weeks, however, to complete all the steps. A more important obstacle might be the reluctance of HQ AFMPC to produce a worldwide ADAF personnel data file - using OPHSA's inclusion and exclusion criteria - on a monthly basis. As noted above, obtaining the most current AFMPC personnel data would be critical because of frequent updates.

A question was asked on the survey regarding recent TDY travel. Although the TDY data were not analyzed by CDC due to time constraints and limitations of the data, OPHSA investigators could conduct preliminary analyses to explore the influence of TDY on health-related behavior, and TDY travel could be factored into the sampling in the next iteration of ADAF behavioral risk factor surveillance.

The composition of the CDC BRFSS instrument, as described above, changes from year to year, and provides opportunity to track a very large number of behavioral risk factors and screening measures over time. By using the standardized BRFSS instrument the Air Force would take advantage of the CDC's expertise and remain on the leading edge of behavioral risk factor surveillance. Use of the official BRFSS instrument is also a requirement for data analysis by CDC. In continuing this telephone interview-based surveillance system, the Air Force would be using the same methods, the same survey instrument, and the same CDC analysis staff as all 50 states, the District of Columbia, and 3 US territories currently use. This creates the possibility of benchmarking USAF findings to a large body of civilian health data.

Additional modules could be added to the core questions on the CDC BRFSS instrument. Standardized modules are available that cover: use of smokeless tobacco; consumption of dietary fat; consumption of fruits and vegetables; circumstances related to having diabetes; exercise and other forms of physical activity, including leisure and non-leisure activity; weight control; years of healthy life; and quality of life. Certain modules, such as physical activity, are highly relevant to the active duty population.

Given that *Healthy People 2000* goals were primarily written with the US civilian population in view, it may be appropriate for the Air Force to modify these goals, perhaps even on a regular basis. For instance, the Year 2000 goal for regular cholesterol testing is to increase prevalence of periodic screening to at least 75%. If the Air Force (and each MAJCOM) accomplishes this goal, it may be appropriate to then pursue an internal USAF goal of at least 85%. Although the 13% USAF prevalence of overweight (by body mass index) meets the Year 2000 goal of $\leq 20\%$, it may be appropriate to set a USAF (and MAJCOM) goal of $\leq 10\%$.

Given the excellent progress toward *Healthy People 2000* goals found in the current study, it may be tempting to conclude there is little need for continuous surveillance of behavioral risk factors and screening measures in the ADAF population. This conclusion is unwarranted for several reasons. First, unless continuous measurement is performed, the Air Force (or an individual MAJCOM) may accomplish Year 2000 goals without its knowledge. There is also no guarantee that the current gains toward accomplishing *Healthy People 2000* goals will hold: the prevalence

of current smoking may increase; the prevalence of seat belt use may decrease. Second, the CDC BRFSS instrument does not measure the same behaviors and practices every year. The core instrument is dynamic and, in addition, the Air Force may choose to add available modules examining new areas of interest, such as use of smokeless tobacco. Third, it must be emphasized that the CDC BRFSS instrument does not actually measure behavior *per se*, only the self report of behavior. Thus, it is possible that ADAF personnel (and US residents in the CDC BRFSS) actually behave quite differently than they report. However, if prevalence estimates from a series of annual surveys show a *consistent* pattern, it would lend support to the validity of these results, since a different random sample of ADAF members would be interviewed each year. A question which may appear to one member as touching on a sensitive topic may strike another member as totally innocuous. A particular health topic may be the subject of intense public attention one year and barely discussed the next.

Conclusions

Findings from this study have clear implications for the prevention community. Specific, measurable, verifiable targets can be set using the data. Prevalence of risk factors and preventive health measures can be assessed at the level of a major command, compared across commands, and USAF findings can be compared with data from the general US population. However, the full benefits of the present study will not be realized unless behavioral risk factors in the active duty USAF population are measured *continuously*, so that changes can be measured over time. In this way, progress can be measured, and interventions can be designed to combat emerging trends in unhealthy behaviors.

The present study represents the first USAF wide comprehensive behavioral risk factor survey to provide MAJCOM-specific results. Overall, the data indicate very substantial progress toward meeting *Healthy People 2000* goals, and in general, very good health status, low prevalence of behavioral risk factors, and high prevalence of preventive health measures. Numerous exceptions to these general patterns were found in several areas at the MAJCOM and USAF levels, and each exception presents Air Force public health and preventive medicine practitioners with an opportunity to improve the health of active duty Air Force members. These opportunities exist at the MTF, base, MAJCOM, and Air Force level. Data on health status are generally favorable, but measures of poor mental health and activity limitation differ little from US general population values. The Air Force appears to be within range of accomplishing Year 2000 goals for current smoking, periodic cholesterol testing, and child bicycle helmet use. Significant work is needed in the area of alcohol abuse behaviors, which are either higher than the US population or unacceptably high given Air Force standards and policies.

It is recommended that the present behavioral risk factor surveillance pilot project serve as the first of an annual series of surveys, inaugurating a full-fledged Active Duty Air Force Behavioral Risk Factor Surveillance System.

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TABLE 1. Health status measures* by major command

| Health status measure | Prevalence by major command (% population with risk factor or mean value, with 95% confidence interval [CI]) | | | | | | | | | |
	ACC (95% CI)	AETC (95% CI)	AFMC (95% CI)	AF SPACECOM (95% CI)	AFSOC (95% CI)	AMC (95% CI)	PACAF (95% CI)	USAFE (95% CI)
General health status	78.2 (72.3-84.1)	78.5 (72.9-84.1)	73.6 (67.2-80.0)	74.1 (69.2-79.0)	72.8 (66.7-79.0)	74.0 (67.6-80.3)	72.8 (65.9-79.6)	71.0 (63.4-78.6)
Physical health not good (mean, days)	1.3 (0.8-1.8)	0.9 (0.5-1.3)	1.3 (0.6-1.9)	1.3 (0.7-1.8)	1.3 (0.9-1.7)	1.4 (0.9-1.9)	1.4 (0.8-2.0)	1.7 (0.8-2.6)
Mental health not good (mean, days)	2.1 (1.4-2.7)	2.6 (1.8-3.3)	2.0 (1.3-2.8)	2.3 (1.5-3.2)	2.1 (1.4-2.7)	2.3 (1.5-3.2)	2.1 (1.4-2.8)	2.8 (1.8-3.7)
Activities limited (mean, days)	1.9 (0.6-3.1)	1.5 (0.8-2.1)	3.0 (1.5-4.4)	1.6 (0.6-2.6)	2.0 (1.1-2.9)	1.3 (0.7-2.0)	2.0 (1.0-2.9)	1.6 (0.7-2.5)

* Please see Methods section for definitions of all risk factors and preventive health measures.

26

TABLE 2. Risk factors and preventive health measures* by major command

| | Prevalence by major command | | | | | | | |
| | (% population with risk factor or preventive health measure, with 95% confidence interval [CI]) | | | | | | | |
Risk factor/ preventive health measure	ACC (95% CI)	AETC (95% CI)	AFMC (95% CI)	AF SPACECOM (95% CI)	AFSOC (95% CI)	AMC (95% CI)	PACAF (95% CI)	USAFE (95% CI)
Hypertension awareness	9.6 (5.0-14.2)	11.0 (6.8,15.3)	9.9 (5.4,14.4)	9.8 (6.2-13.4)	11.6 (6.7-16.5)	10.6 (6.0-15.2)	11.1 (7.1-15.1)	13.0 (7.3-18.7)
Hypertension screening	96.8 (94.2-99.4)	99.2 (98.2-100)	98.9 (97.3-100)	98.7 (97.3-100)	98.2 (96.2-100)	97.4 (94.9-99.9)	99.0 (97.7-100)	100 (100-100)
Cholesterol awareness	15.1 (9.7-20.4)	14.2 (9.6-18.7)	20.1 (14.1-26.2)	18.1 (12.2-24.0)	20.9 (14.9-27.0)	20.2 (14.3-26.1)	16.5 (11.4-21.5)	14.2 (8.4-20.1)
Cholesterol screening†	67.0 (60.4-73.7)	75.4 (69.5-81.2)	82.2 (76.8-87.7)	81.1 (73.1-89.2)	74.9 (65.9-83.9)	82.6 (76.8-88.4)	77.6 (71.5-83.8)	73.0 (65.4-80.7)
Cholesterol screening§	62.7 (55.8-69.5)	72.6 (66.6-78.7)	80.3 (74.6-86.0)	77.4 (69.8-85.1)	68.2 (59.9-76.5)	80.8 (74.8-86.8)	74.6 (68.5-80.7)	67.5 (59.5-75.5)
Diabetes awareness	0 (0-0)	0.1 (0-0.2)	1.3 (0-3.0)	0.4 (0-1.3)	0 (0-0)	1.0 (0-2.2)	0 (0-0)	0 (0-0)
Ever smoked	45.0 (37.9-52.1)	36.1 (29.6-42.7)	34.2 (27.3-41.2)	41.0 (33.6-48.3)	37.3 (29.4-45.2)	38.2 (31.1-45.3)	39.5 (33.5-45.6)	36.8 (28.6-45.0)
Current smokers	29.0 (22.3-35.7)	19.7 (14.3-25.2)	15.1 (9.9-20.2)	21.5 (14.8-28.1)	25.0 (18.3-31.6)	19.7 (13.9-25.6)	20.6 (15.4-25.7)	19.6 (12.8-26.4)

* Please see Methods section for definitions of all risk factors and preventive health measures.
† Ever had cholesterol checked.
§ Had cholesterol checked in last 5 years.

27

TABLE 3. Risk factors and preventive health measures* by major command (cont.)

| | Prevalence by major command | | | | | | | |
| | (% population with risk factor or preventive health measure, with 95% confidence interval [CI]) | | | | | | | |
Risk factors/ preventive health measure	ACC (95% CI)	AETC (95% CI)	AFMC (95% CI)	AF SPACECOM (95% CI)	AFSOC (95% CI)	AMC (95% CI)	PACAF (95% CI)	USAFE (95% CI)
Current drinkers	71.5 (65.3-77.6)	68.4 (62.2-74.6)	71.5 (64.9-78.1)	74.7 (67.8-81.5)	77.2 (71.0-83.4)	73.5 (67.7-79.0)	73.3 (67.7-79.0)	77.8 (70.9-84.8)
Binge drinking	28.8 (22.3-35.4)	20.3 (14.7-25.9)	23.6 (17.3-30.0)	23.5 (15.9-31.2)	34.5 (28.3-40.7)	23.5 (17.1-29.9)	33.3 (27.3-39.3)	28.5 (20.7-36.3)
Chronic drinking	3.1 (0.6-5.6)	2.8 (0.4-5.3)	4.4 (1.4-7.4)	2.3 (0.4-4.2)	5.8 (2.3-9.2)	4.1 (1.0-7.2)	6.8 (3.4-10.2)	7.9 (3.2-12.6)
Drinking and driving	4.4 (1.4-7.5)	2.6 (0.5-4.7)	0.7 (0-1.9)	1.0 (0-2.4)	4.4 (2.2-6.6)	0.8 (0-2.1)	2.6 (0.5-4.6)	2.2 (0-4.8)
Overweight: by body mass index	10.7 (6.0-15.3)	9.9 (5.8-14.1)	17.6 (11.9-23.4)	12.3 (7.7-17.0)	16.1 (10.5-21.6)	17.1 (11.5-22.7)	17.0 (12.2-21.8)	14.5 (8.6-20.4)
Overweight: by median	17.2 (11.5-22.8)	14.2 (9.5-19.0)	25.4 (18.8-31.9)	17.2 (11.7-22.8)	20.9 (15.2-26.5)	21.9 (15.8-28.1)	22.9 (17.5-28.3)	20.3 (13.5-27.1)
AIDS: encourage teen condom use	90.6 (86.3-94.8)	90.5 (86.5-94.5)	89.9 (85.3-94.4)	92.7 (88.5-96.9)	92.6 (89.3-95.8)	93.8 (90.0-97.6)	91.4 (87.8-95.0)	96.0 (92.8-99.3)
AIDS: condom effectiveness	36.8 (30.1-43.6)	38.3 (31.7-44.9)	40.4 (33.2-47.5)	41.2 (34.4-48.0)	40.0 (33.2-46.9)	35.6 (28.6-42.7)	37.8 (31.8-43.8)	48.4 (39.9-56.8)
AIDS blood test	96.3 (93.8-98.7)	96.4 (93.7-99.0)	96.8 (94.3-99.3)	97.4 (94.9-99.9)	95.2 (91.9-98.5)	94.8 (91.4-98.3)	99.6 (98.7-100)	95.7 (92.2-99.2)
Chances of getting AIDS	2.4 (0-4.8)	3.1 (0.9-5.3)	1.6 (0-3.5)	1.1 (0-2.3)	0.9 (0-2.15)	2.6 (0.4-2.7)	1.3 (0-2.7)	1.5 (0-3.6)

* Please see Methods section for definitions of all risk factors and preventive health measures.

28

TABLE 4. Injury-related risk factors* by major command

Injury-related risk factor	Prevalence by major command (% population with risk factor or preventive health measure, with 95% confidence interval [CI])							
	ACC (95% CI)	AETC (95% CI)	AFMC (95% CI)	AF SPACECOM (95% CI)	AFSOC (95% CI)	AMC (95% CI)	PACAF (95% CI)	USAFE (95% CI)
Lack of safety belt usage†	1.6 (0-3.2)	2.1 (0.1-4.1)	0.5 (0-1.6)	0.8 (0-1.9)	1.3 (0-2.7)	3.2 (0.5-6.0)	0.9 (0-2.2)	0 (0-0)
Lack of safety belt usage§	10.6 (6.4-14.8)	8.4 (4.4-12.3)	10.0 (5.6-14.5)	11.2 (5.7-16.8)	11.7 (7.1-16.3)	10.8 (6.2-15.4)	8.9 (5.0-12.8)	6.9 (2.5-11.2)
Child safety belt	97.5 (92.7-100)	94.4 (88.3-100)	97.3 (93.6-100)	97.0 (92.9-100)	98.5 (95.6-100)	97.4 (92.3-100)	100 (100-100)	100 (100-100)
Child safety seat usage	99.7 (99.1-100)	100 (100-100)	100 (100-100)	97.5 (92.6-100)	97.6 (92.8-100)	99.2 (97.6-100)	97.3 (91.9-100)	100 (100-100)
Use of child bicycle helmets	62.3 (48.4-76.1)	41.8 (28.0-55.6)	50.4 (38.3-62.5)	64.7 (55.3-74.0)	39.6 (27.0-52.2)	55.8 (40.8-70.7)	55.8 (44.6-66.9)	57.0 (40.5-73.5)
Smoke detectors	80.0 (74.6-85.5)	77.9 (72.2-83.6)	85.9 (80.9-90.9)	78.0 (72.6-83.5)	86.4 (82.0-90.9)	81.0 (75.0-86.9)	75.9 (70.1-81.7)	73.3 (65.8-80.8)

* Please see Methods section for definitions of all risk factors and preventive health measures.
† Uses safety belts sometimes, seldom, or never.
§ Does not always use a safety belt.

TABLE 5. Cancer screening measures* by major command

Cancer screening measure	Prevalence by major command (% population with risk factor or cancer screening measure, with 95% confidence interval [CI])							
	ACC (95% CI)	AETC (95% CI)	AFMC (95% CI)	AF SPACECOM (95% CI)	AFSOC (95% CI)	AMC (95% CI)	PACAF (95% CI)	USAFE (95% CI)
Rectal exam	87.4 (71.8-100)	91.8 (83.2-100)	93.7 (85.2-100)	96.6 (89.9-100)	85.5 (72.7-98.3)	93.2 (82.4-100)	80.1 (66.2-94.0)	100 (100-100)
Mammogram-females†	20.6 (15.2-26.0)	33.4 (25.6-41.3)	33.7 (21.6-45.8)	23.4 (0-50.1)	34.7 (19.4-49.9)	36.7 (26.2-47.1)	34.6 (21.0-48.1)	34.0 (17.4-50.7)
Mammogram-females§	—	—	—	—	—	—	—	—
Breast exam-females¶	95.5 (92.3-98.6)	93.1 (88.3-97.9)	95.0 (88.9-100)	100 (100-100)	100 (100-100)	97.4 (93.7-100)	87.4 (77.5-97.3)	100 (100-100)
Breast exam-females**	—	—	—	—	—	—	—	—
Mammogram and breast exam-females	—	—	—	—	—	—	—	—
Ever had a pap smear	99.6 (98.9-100)	99.0 (97.1-100)	94.3 (86.7-100)	100 (100-100)	100 (100-100)	98.3 (94.9-100)	97.3 (91.9-100)	100 (100-100)
Ever had a pap smear (with uterine cervix)	99.6 (98.9-100)	99.0 (96.9-100)	94.1 (86.1-100)	100 (100-100)	100 (100-100)	98.2 (94.6-100)	100 (100-100)	100 (100-100)
Had pap smear within 3 years (with uterine cervix)	99.6 (98.9-100)	98.4 (96.0-100)	93.1 (85.0-100)	98.5 (95.4-100)	100 (100-100)	98.2 (94.6-100)	97.1 (91.4-100)	95.4 (86.6-100)

— Estimate unreliable due to very small sample size.
* Please see Methods section for definitions of all risk factors and preventive health measures.
† Ever had a mammogram, aged 18 and older.
§ Ever had a mammogram, aged 40 and older.
¶ Ever had a clinical breast exam, aged 18 and older.
** Ever had a clinical breast exam, aged 40 and older.

30

TABLE 6. Prevalence of selected risk factors and preventive health measures* by gender for ACC, AETC, AFMC, and AF SPACECOM

Risk factor/ preventive health measure	Prevalence by gender for each major command (% population with risk factor or preventive health measure, with 95% confidence interval [CI])							
	ACC		AETC		AFMC		AF SPACECOM	
	Males	Females	Males	Females	Males	Females	Males	Females
General health status	79.1 (72.3-86.0)	72.6 (66.3-78.9)	78.0 (71.2-84.8)	80.7 (74.0-87.5)	74.8 (67.6-82.0)	67.8 (55.0-80.5)	74.5 (69.3-79.8)	71.3 (58.8-83.9)
Hypertension awareness	10.3 (4.9-15.7)	5.8 (2.7-8.9)	11.9 (6.7-17.1)	7.7 (3.2-12.2)	11.1 (5.8-16.5)	3.6 (0-7.7)	7.7 (4.5-11.0)	22.8 (15.5-30.2)
Hypertension screening	96.2 (93.2-99.3)	100 (100-100)	99.4 (98.1-100)	98.6 (96.5-100)	98.7 (96.8-100)	100 (100-100)	98.5 (96.9-100)	100 (100-100)
Cholesterol screening†	62.0 (54.1-69.9)	66.6 (59.7-73.6)	75.1 (67.9-82.3)	62.4 (53.6-71.1)	82.1 (75.9-88.3)	71.2 (58.0-84.4)	79.8 (73.1-86.5)	—
Diabetes awareness	0 (0-0)	0 (0-0)	0 (0-0)	0.4 (0-1.2)	1.5 (0-3.6)	0 (0-0)	0.5 (0-1.5)	0 (0-0)
Lack of safety belt usage§	1.7 (0-3.6)	0.9 (0-2.3)	2.1 (0-4.6)	1.8 (0-4.0)	0.6 (0-1.9)	0 (0-0)	0.5 (0-1.4)	2.9 (0-7.8)
Lack of safety belt usage¶	11.0 (6.2-15.9)	8.2 (3.2-13.1)	9.4 (4.5-14.3)	4.0 (0.8-7.2)	9.9 (4.9-14.9)	10.7 (1.2-20.1)	11.8 (5.5-18.2)	7.6 (0.7-14.5)
Current smokers	30.6 (22.8-38.3)	20.0 (14.3-25.6)	20.0 (13.5-26.6)	18.4 (11.6-25.2)	14.5 (8.7-20.3)	17.9 (7.4-28.4)	21.8 (14.2-29.4)	19.6 (11.4-27.7)

— Estimate unreliable due to very small sample size.
* Please see Methods section for definitions of all risk factors and preventive health measures.
† Had cholesterol checked in last 5 years.
§ Uses safety belts sometimes, seldom, or never.
¶ Does not always use a safety belt.

31

TABLE 7. Prevalence of selected risk factors and preventive health measures* by gender for ACC, AETC, AFMC, and AF SPACECOM (cont.)

Risk factor/ preventive health measure	Prevalence by gender for each major command (% population with risk factor or preventive health measure, with 95% confidence interval [CI])							
	ACC		AETC		AFMC		AF SPACECOM	
	Males	Females	Males	Females	Males	Females	Males	Females
Binge drinking	31.9 (24.2-39.5)	11.3 (6.9-15.7)	23.0 (16.1-29.8)	9.6 (4.6-14.6)	27.1 (19.7-34.5)	6.6 (0-14.3)	26.1 (17.6-34.6)	7.6 (0.7-14.5)
Chronic drinking	3.5 (0.6-6.4)	0.7 (0-1.7)	3.5 (0.5-6.6)	0 (0-0)	5.3 (1.7-8.9)	0 (0-0)	2.7 (0.5-4.8)	0 (0-0)
Drinking and driving	5.0 (1.5-8.6)	1.0 (0-2.4)	2.6 (0.1-5.2)	2.4 (0-5.2)	0.7 (0-2.1)	0.9 (0-2.7)	0.8 (0-2.8)	0 (0-0)
Overweight: by body mass index	11.7 (6.3-17.2)	4.5 (1.9-7.1)	11.4 (6.2-16.5)	4.1 (0.7-7.4)	20.5 (13.7-27.3)	3.3 (0-7.1)	14.3 (9.2-19.4)	0 (0-0)
Overweight: by median	18.6 (12.0-25.2)	8.8 (5.0-12.7)	15.7 (9.9-21.5)	8.2 (3.7-12.6)	29.6 (22.0-37.3)	4.2 (0.1-8.4)	19.6 (13.5-25.6)	2.9 (0-7.8)
Rectal exam	87.2 (70.8-100)	89.4 (75.2-100)	93.0 (83.5-100)	83.6 (66.7-100)	93.1 (83.8-100)	100 (100-100)	96.2 (88.8-100)	100 (100-100)

* Please see Methods section for definitions of all risk factors and preventive health measures.

32

TABLE 8. Prevalence of selected risk factors and preventive health measures* by gender for AFSOC, AMC, PACAF, and USAFE

Risk factor/ preventive health measure	Prevalence by gender for each major command (% population with risk factor or preventive health measure, with 95% confidence interval [CI])							
	AFSOC		AMC		PACAF		USAFE	
	Males	Females	Males	Females	Males	Females	Males	Females
General health status	74.2 (67.9-79.0)	60.8 (44.0-77.7)	74.8 (67.5-82.0)	69.7 (59.5-80.0)	73.1 (65.5-80.8)	70.7 (57.5-83.8)	73.2 (64.9-81.6)	—
Hypertension awareness	12.3 (7.0-17.6)	5.4 (0-13.4)	11.1 (5.8-16.4)	8.2 (2.3-14.0)	11.6 (7.1-16.1)	8.3 (0.1-16.5)	13.6 (7.1-20.0)	10.1 (0-21.2)
Hypertension screening	98.0 (95.8-100)	100 (100-100)	96.9 (94.0-99.9)	100 (100-100)	98.9 (97.3-100)	100 (100-100)	100 (100-100)	100 (100-100)
Cholesterol screening†	67.8 (58.8-76.8)	—	79.8 (72.9-86.7)	86.2 (78.2-94.1)	73.3 (66.4-80.1)	82.0 (70.3-93.6)	67.9 (59.1-76.8)	—
Diabetes awareness	0 (0-0)	0 (0-0)	0.7 (0-2.0)	2.6 (0-6.3)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)
Lack of safety belt usage§	1.4 (0-2.9)	0 (0-0)	3.2 (0.1-6.3)	3.4 (0-8.1)	1.1 (0-2.6)	0 (0-0)	0 (0-0)	0 (0-0)
Lack of safety belt usage¶	12.0 (7.3-16.7)	—	10.6 (5.3-15.8)	12.2 (5.1-19.2)	9.0 (4.7-13.3)	8.2 (0-17.1)	7.6 (2.5-12.7)	2.9 (0-8.6)
Current smokers	22.2 (16.3-28.1)	—	20.1 (13.4-26.8)	17.7 (9.5-25.9)	20.7 (15.0-26.4)	19.7 (8.6-30.8)	21.9 (14.1-29.7)	7.2 (0-17.0)

— Estimate unreliable due to very small sample size.
* Please see Methods section for definitions of all risk factors and preventive health measures.
† Had cholesterol checked in last 5 years.
§ Use safety belts sometimes, seldom, or never.
¶ Does not always use a safety belt.
** This estimate is based on a small sample size and has a very large standard error.

TABLE 9. Prevalence of selected risk factors and preventive health measures* by gender for AFSOC, AMC, PACAF, and USAFE (cont.)

Risk factor/ preventive health measure	Prevalence by gender for each major command (% population with risk factor or preventive health measure, with 95% confidence interval [CI])							
	AFSOC		AMC		PACAF		USAFE	
	Males	Females	Males	Females	Males	Females	Males	Females
Binge drinking	35.6 (29.5-41.7)	24.8 (0-51.4)	25.8 (18.4-33.2)	11.0 (3.5-18.6)	37.6 (30.6-44.6)	9.8 (1.2-18.3)	31.8 (23.0-40.7)	10.4 (0-22.1)
Chronic drinking	6.4 (2.6-10.2)	0 (0-0)	4.7 (1.0-8.3)	0.9 (0-2.6)	7.3 (3.4-11.1)	4.2 (0-10.1)	8.6 (3.2-13.9)	4.3 (0-12.5)
Drinking and driving	4.9 (2.5-6.6)	0 (0-0)	0.8 (0-2.4)	0.7 (0-2.1)	2.0 (0-4.1)	5.5 (0-12.8)	1.9 (0-4.4)	4.3 (0-12.5)
Overweight: by body mass index	17.8 (12.0-23.6)	0 (0-0)	18.9 (12.3-25.4)	7.6 (1.4-13.8)	19.3 (13.8-24.9)	4.2 (0-10.1)	14.3 (7.8-20.9)	15.2 (2.1-28.3)
Overweight: by median	21.7 (15.7-27.8)	13.1 (0.6-25.5)	23.9 (16.8-31.1)	11.1 (3.8-18.3)	25.8 (19.7-31.9)	6.9 (0-14.7)	20.7 (13.1-28.3)	18.1 (4.2-32.0)
Rectal exam	84.9 (71.5-98.3)	100 (100-100)	93.5 (80.9-100)	91.9 (76.4-100)	81.7 (65.5-97.8)	—	100 (100-100)	100 (100-100)

* Please see Methods section for definitions of all risk factors and preventive health measures.
— Estimate unreliable due to very small sample size.

34

TABLE 10. Health status measures*, entire ADAF population compared with national results and goals

Health status measure	USAF prevalence (% or mean, with 95% CI†)	1993 CDC BRFSS			Healthy People 2000 Goal (% or mean)
		Low state (% or mean)	US median (% or mean)	High state (% or mean)	
General health status	75.6 (73.1-78.2)	—	—	—	—
Physical health not good (mean, days)	1.3 (1.1-1.5)	1.6	2.9	4.1	—
Mental health not good (mean, days)	2.3 (2.0-2.6)	1.4	2.8	4.0	—
Activities limited (mean, days)	1.8 (1.3-2.2)	0.7	1.6	2.7	—

— Not measured in 1993 CDC BRFSS or does not measure any specific *Healthy People 2000* goal.
* Please see Methods section for definitions of all risk factors and preventive health measures.
† Confidence interval.

35

TABLE 11. Risk factors and preventive health measures*, entire ADAF population compared with national results and goals

Risk factor/ preventive health measure	USAF prevalence (%, with 95% CI†)	1993 CDC BRFSS			Healthy People 2000 Goal (%)
		Low state (%)	US median (%)	High state (%)	
Hypertension awareness	10.5 (8.6-12.4)	16.8	21.7	29.8	—
Hypertension screening	98.2 (97.2-99.1)	90.3	93.5	96.5	—
Cholesterol awareness	16.6 (14.4-18.9)	11.9	19.2	23.3	—
Cholesterol screening§	75.0 (72.3-77.7)	59.5	67.9	75.6	—
Cholesterol screening¶	71.6 (68.8-74.4)	57.0	65.0	73.4	≥75
Diabetes awareness	0.3 (0-0.6)	2.7	4.5	6.3	—

— Not measured in 1993 CDC BRFSS or does not measure any specific *Healthy People 2000* goal.
* Please see Methods section for definitions of risk factors and preventive health measures.
† Confidence interval.
§ Ever had cholesterol checked.
¶ Had cholesterol checked in last 5 years.

36

TABLE 12. Risk factors and preventive health measures*, entire ADAF population compared with national results and goals (cont.)

Risk factor/ preventive health measure	USAF prevalence (%, with 95% CI†)	1993 CDC BRFSS			Healthy People 2000 Goal (%)
		Low state (%)	US median (%)	High state (%)	
Ever smoked	39.7 (36.7-42.7)	30.9	49.0	57.6	—
Current smokers	22.4 (19.7-25.0)	14.5	22.5	30.1	≤20§
Current drinkers	72.3 (69.6-74.9)	27.4	51.6	69.6	—
Binge drinking	26.2 (23.5-28.9)	4.2	14.2	22.8	—
Chronic drinking	4.1 (2.9-5.2)	1.4	3.0	6.1	—
Drinking and driving	2.6 (1.5-3.7)	0.8	2.4	5.3	—
Overweight: by body mass index	13.4 (11.3-15.4)	20.2	25.5	31.7	≤20
Overweight: by median	19.1 (16.7-21.5)	24.0	30.1	36.3	—
AIDS: encourage teen condom use	91.7 (90.0-93.4)	85.7	91.8	94.9	—
AIDS: condom effectiveness	38.6 (35.8-41.5)	17.7	25.5	39.2	—
AIDS blood test	96.4 (95.3-97.5)	15.1	25.0	39.5	—
Chances of getting AIDS	2.2 (1.2-3.1)	0.8	2.1	3.8	—

— Not measured in 1993 CDC BRFSS or does not measure any specific *Healthy People 2000* goal.
* Please see Methods section for definitions of risk factors and preventive health measures.
† Confidence interval.
§ *Healthy People 2000* objective written specifically for military personnel.

TABLE 13. Injury-related risk factors*, entire ADAF compared with national results and goals

Injury-related risk factor	USAF prevalence (%, with 95% CI†)	1993 CDC BRFSS			Healthy People 2000 Goal (%)
		Low state (%)	US median (%)	High state (%)	
Lack of safety belt usage§	1.6 (0.8-2.3)	3.9	20.8	52.0	—
Lack of safety belt usage¶	9.8 (8.0-11.6)	10.1	36.3	74.8	<15
Child safety belt	97.4 (95.4-99.4)	—	—	—	≥85
Child safety seat usage	99.3 (98.6-100)	—	—	—	≥95
Use of child bicycle helmets	55.3 (49.5-61.1)	—	—	—	≥50
Smoke detectors	79.5 (77.1-81.9)	—	—	—	—

— Not measured in 1993 CDC BRFSS or does not measure any specific *Healthy People 2000* goal.
* Please see Methods section for definitions of risk factors and preventive health measures.
† Confidence interval.
§ Use safety belts sometimes, seldom, or never.
¶ Does not always use a safety belt.

38

TABLE 14. Cancer screening measures*, entire ADAF population compared with national results and goals

Cancer screening measure	USAF prevalence (%, with 95% CI†)	1993 CDC BRFSS			Healthy People 2000 Goal (%)
		Low state (%)	US median (%)	High state (%)	
Rectal exam	90.6 (85.0-96.2)	24.5	39.8	51.6	—
Mammogram-females§	29.9 (26.1-33.8)	46.8	53.9	59.0	—
Mammogram-females¶	94.4 (89.5-99.4)	68.5	77.9	85.7	—
Breast exam-females**	95.1 (93.2-97.0)	82.6	89.5	94.3	—
Breast exam-females††	98.6 (95.9-100)	81.6	89.8	95.0	—
Mammogram and breast exam-females	93.1 (87.5-98.6)	63.6	73.4	81.8	≥80
Ever had a pap smear	98.6 (97.4-99.8)	85.4	93.4	96.4	—
Ever had a pap smear (with uterine cervix)	98.8 (97.6-99.9)	84.3	93.7	96.6	≥95
Had pap smear within 3 years (with uterine cervix)	97.8 (96.4-99.3)	—	—	—	≥85

— Not measured in 1993 CDC BRFSS or does not measure any specific *Healthy People 2000* goal.
* Please see Methods section for definitions of all risk factors and preventive health measures.
† Confidence interval.
§ Ever had a mammogram, aged 18 and older.
¶ Ever had a mammogram, aged 40 and older.
** Ever had a clinical breast examination, aged 18 and older.
†† Ever had a clinical breast examination, aged 40 and older.

39

APPENDICES

APPENDIX A

**Quality Control Report
from University of Texas-Austin**

Quality Control Report
Behavioral Risk Factor Study:
United States Air Force Personnel
November 1995

Commissioned by
The United States Air Force

Conducted by The Office of Survey Research,
College of Communication
The University of Texas at Austin,
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Ms. Veronica Inchauste, Director
Ms. Ana María Arumí, Manager

ACKNOWLEDGMENTS

TABLE OF CONTENTS

BEHAVIORAL RISK FACTOR STUDY: US AIR FORCE PERSONNEL

QUALITY CONTROL REPORT

I.- INTRODUCTION

The Behavioral Risk Factor survey for the US Air Force consisted of conducting telephone interviews with active Air Force service members working in bases throughout the world. The sample was stratified by major command rank group and gender. A total of eight major commands and three rank groups were used for stratification. The Office of Survey Research's (OSR's) role in this project consisted of modifying an existing questionnaire provided by the Center for Disease Control to fit US Air Force needs, conducting data collection, cleaning and editing data as well as re-contacting respondents to verify information, providing a final output of the data and preparing a quality control report.

II.- METHODOLOGY

Sampling

In March, 1995, OPHSA obtained a data file containing demographics (e.g., name and rank) and assignment information (e.g., current base duty assignment) from Headquarters, Air Force Military Personnel Center (HQ AFMPC) at Randolph AFB, Texas. The following personnel were excluded from this file: basic military trainees and other ADAF members in training status, members of the Air Force Office of Special Investigation; and active duty USAF members with a high likelihood of impending personnel actions involving geographic movement (e.g., permanent change of station, separation). All other ADAF members worldwide were included in the sample. After the file was received by OPHSA, the decision was made to also exclude general officers. The

1

AFMPC data file was merged with a smaller file containing telephone contact data, such as dialing sequences for overseas bases, etc.

The data set was stratified by major command (MAJCOM), gender, and rank group. Eight MAJCOMs were used (ACC, AFMC, AMC, AF SPACECOM, AFSOC, PACAF, USAFE, and AETC), and service members were categorized by the MAJCOM of their base of assignment. Only ADAF members who were assigned to an Air Force military installation (e.g., base, air station) belonging to one of the above eight MAJCOMs were eligible for this survey. Three rank groups were used: junior enlisted (E1-E4); senior enlisted (E5-E9); and officers (01-06). Simple random sampling was then performed within each of the resulting 48 (8 MAJCOM x 2 gender x 3 rank) strata, with a predetermined number of members drawn from each stratum. This number was determined for each stratum using nonlinear programming. Selection probabilities were unequal across the strata. The total number of ADAF members chosen for the sample was 3,930.

The final data file sent to the Air Force from the Office of Survey Research (OSR) contains no personal identifiers, only the stratum variable denoting major command and rank group, as well as the responses to the survey questions. Thus, it will be impossible in the final OSR data file to link responses to specific individuals.

<u>Questionnaire</u>

The questionnaire was designed by the Centers for Disease Control in Atlanta. Please refer to Appendix A which explain the changes made to the original questionnaire provided by CDC to adapt it to the BRFS Study for the US Airforce.

2

Data Collection Team

The OSR's data collection team for this project consisted of a Field Director and an Assistant Field Director who were in charge of constant monitoring of the sample, sample control, verification of interviews and scheduling of monitoring and evaluating interviewers and supervisors. The core data collection team consisted of fifty interviewers and eighteen supervisors.

All interviewers and supervisors received extensive training including 22 hours of classroom instruction, computer tutorials and practice interviewing sessions. The data collection team was familiarized with the overall study objectives, interviewing techniques, the use of the Computer Assisted Telephone Interviewing (CATI) system, the survey instrument, the definitions of key terms specific to the study, and the University of Texas statement of interviewer ethics and obligations.

Interviewer performance was evaluated throughout the data collection period. A four-person monitoring team used a standardized evaluation instrument to randomly assess individual interviewing performance in the use of appropriate feedback, reading verbatim, proper speech and pronunciation, interviewing pace, and general rapport with respondents. Interviewers were monitored several times during the study period and received feedback on their performance.

Survey supervisors also verified about 10% of the completed interviews during the data collection period to insure that interviews were conducted with the correct respondent. The verification procedure consisted of re-contacting respondents of completed surveys and asking them whether they participated in the survey.

3

    The Office of Survey Research used a DOS computer program provided by CDC to check the logic and accuracy of the data collected. After running this program, a list of few cases was produced that needed some verification of specific information. OSR re-contacted some respondents to verify the desired information.

III. QUALITY CONTROL RESULTS

Sample Disposition

    The final outcome of every sample point called is summarized in the following tables by command post. The last table contains the final outcome for the entire sample used in the study.

COMMAND AMC	Sample
Completed Interviews	228
Refusals	4
Disconnected/Fax Line/Constantly Busy	33
No longer at Base/Discharged/Retired/Separated	109
Unable to find Respondent/No Answer/Away for the Duration of Project/	116
Problem/Computer Problem	17
TOTAL	507

COMMAND SPC	Sample
Completed Interviews	220
Refusals	5
Disconnected/Fax Line/Constantly Busy	29
No longer at Base/Discharged/Retired/Separated	77
Unable to find Respondent/No Answer/Away for the Duration of Project/	91
Problem/Computer Problem	3
TOTAL	425

4

COMMAND SOC	Sample
Completed Interviews	219
Refusals	6
Disconnected/Fax Line/Constantly Busy	25
No longer at Base/Discharged/Retired/Separated	55
Unable to find Respondent/No Answer/Away for the Duration of Project/	105
Problem/Computer Problem	3
TOTAL	413

COMMAND EUR	Sample
Completed Interviews	141
Refusals	3
Disconnected/Fax Line/Constantly Busy	56
No longer at Base/Discharged/Retired/Separated	102
Unable to find Respondent/No Answer/Away for the Duration of Project/	111
Problem/Computer Problem	8
TOTAL	421

COMMAND AET	Sample
Completed Interviews	296
Refusals	8
Disconnected/Fax Line/Constantly Busy	30
No longer at Base/Discharged/Retired/Separated	110
Unable to find Respondent/No Answer/Away for the Duration of Project/	83
Problem/Computer Problem	6
TOTAL	533

COMMAND PAC	Sample
Completed Interviews	234
Refusals	6
Disconnected/Fax Line/Constantly Busy	15
No longer at Base/Discharged/Retired/Separated	94
Unable to find Respondent/No Answer/Away for the Duration of Project/	72
Problem/Computer Problem	1
TOTAL	422

COMMAND ACC	Sample
Completed Interviews	383
Refusals	12
Disconnected/Fax Line/Constantly Busy	42
No longer at Base/Discharged/Retired/Separated	148
Unable to find Respondent/No Answer/Away for the Duration of Project/	143
Problem/Computer Problem	5
TOTAL	733

COMMAND MAT	Sample
Completed Interviews	210
Refusals	3
Disconnected/Fax Line/Constantly Busy	19
No longer at Base/Discharged/Retired/Separated	114
Unable to find Respondent/No Answer/Away for the Duration of Project/	125
Problem/Computer Problem	3
TOTAL	474

ENTIRE STUDY	Sample
Completed Interviews	1,932
Refusals	47
Disconnected/Fax Line/Constantly Busy	249
No longer at Base/Discharged/Retired/Separated	809
Unable to find Respondent/No Answer/Away for the Duration of Project/	846
Problem/Computer Problem	45
TOTAL	3,928

Response Rates

When computing response rates or what is also called the cooperation rate of respondents the following formulas were used:

Formula #1
$$\text{UPPER BOUND} = \frac{\text{Completed Interviews}}{\text{Completed Interviews + Refusals}}$$

Formula #2
$$\text{RESP. RATE} = \frac{\text{Completed Interviews}}{\text{Completed Int.+ Refusal + Unable to Find Respondent}}$$

Please refer to Table 1.1 for individual response rates by Command Post and for the final response rates for the entire study.

Table 1.1

Response Rates by Command Post

Command Post	Formula #1	Formula #2
AMC	98%	66%
SPC	98%	70%
SOC	97%	66%
EUR	98%	55%
AET	97%	76%
PAC	98%	75%
ACC	97%	71%
MAT	99%	62%
TOTAL STUDY	98%	68%

APPENDIX 9

CHANGES MADE TO QUESTIONNAIRE

Changes Made to the BRFS Questionnaire Provided by CDC:

The following questions were omitted:

1) Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMO's or government plans such as Medicare?

2) About how long has it been since you had health care coverage?

3) Was there a time during the last 12 months when you needed to see a doctor, but could not because of the cost?

4) What county do you live in?

5) Do you have more than one telephone number in your household?

6) How many residential telephone numbers do you have?

The following question was added:

1) During the last month, have you been on temporary duty (or 'TDY') from your regular duty location for one week or more?

APPENDIX B

**1995 Centers for Disease Control and Prevention
Behavioral Risk Factor Surveillance System Core Questionnaire**

1995 Behavioral Risk Factor Questionnaire

FIPS STATE CODE	STRATUM CODE	PSU NUMBER	RECORD NUMBER	DATE OF INTERVIEW			ID
				MM	DD	YY	
(1–2)	(3)	(4–8)	(9)		(10–15)		(16–17)

➡ HELLO, I'm_____calling for the_____.
We're doing a study of the health practices of_____ residents.
Your phone number has been chosen randomly by the_____ to be
included in the study, and we'd like to ask some questions about things people do which may affect
their health.

➡ Is this

Area code	Prefix	Suffix
(18–20)	(21–23)	(24–25)

____ ____

No ➡ *Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time. STOP*

➡ Is this a private residence? **No** ➡ *Thank you very much, but we are only interviewing private residences. STOP*

	Date	Time		Time		Time	ID	Comments
⊘ Line busy	___ ○	___ ○		___ ○		___	___	
	___ ○	___ ○		___ ○		___	___	
	___ ○	___ ○		___ ○		___	___	
● No answer	___ ○	___ ○		___ ○		___	___	
	___ ○	___ ○		___ ○				

Appointments:

	Today's date/time	Spoke with	Ask for	Callback date/time	ID	Comments
1.	_____	_____	_____	_____	___	
2.	_____	_____	_____	_____	___	

Refusals:

	Date/time	Spoke with	ID	Comments
1st	_____	_____	___	
2nd	_____	_____	___	

Call Disposition Codes

01 - Completed interview.
02 - Refused interview.
03 - Nonworking number.
04 - No answer (multiple times).
05 - Business phone.
06 - No eligible respondent at this number.
07 - No eligible respondent could be reached during time period.
08 - Language barrier prevented completion of interview.
09 - Interview terminated within questionnaire.
10 - Line busy (multiple tries).
11 - Selected respondent unable to respond because of physical or mental impairment.

Edited by: _____

Date: ___/___/___

Final disposition of telephone call: ☐☐ (26–27)

Wind down: ☐ (28)

Our study requires that we randomly select one adult who lives in your household to be interviewed. How many members of your household, including yourself, are 18 years of age or older?

If "1" ⇨ Are you the adult?

    If "yes" ⇨ Then you are the person I need to speak with. **Go to page 3** ☞

    If "no" ⇨ May I speak with him or her? **Go to "correct respondent" at bottom of page** ⬇

How many of these adults are men and how many are women?

Men	Women
(31)	(32)

Who is the oldest man who presently lives in this household?
Who is the next oldest man who presently lives in this household?
   Etc.

Who is the oldest woman who presently lives in this household?
Who is the next oldest woman who presently lives in this household?
   Etc.

Suffix: ____ ____ ____ ____

Name or Relationship	0	1	2	3	4	5	6	7	8	9	
1. _____	1	1	1	1	1	1	1	1	1	1	1.
2. _____	2	1	2	1	2	1	2	1	2	1	2.
3. _____	3	1	2	3	1	2	3	1	2	X	3.
4. _____	1	2	3	4	1	2	3	4	X	X	4.
5. _____	2	3	4	5	1	2	3	4	5	1	5.
6. _____	5	6	1	2	3	4	X	X	X	X	6.
7. _____	2	3	4	5	6	7	1	X	X	X	7.
8. _____	8	1	2	3	4	5	6	7	X	X	8.

Last digit of phone number (header spanning columns 0–9)

Total adults (left) / **Total adults** (right)

The person in your household that I need to speak with is_____.

If "you," go to page 3 ☞

To correct respondent ⇨ Hello, I'm_____ calling for the _____. I'm a member of a special research team. We're doing a study of_____ residents regarding their health practices and day-to-day living habits. You have been randomly chosen to be included in the study from among the adult members of your household.

The interview will only take a short time, and all the information obtained in this study will be confidential.

Section 1: Health Status

1. Would you say that in general your health is: (33)

    Please Read

       a. Excellent 1

       b. Very good 2

       c. Good 3

       d. Fair 4
           or
       e. Poor 5

    Do not read these responses.   Don't know/Not sure 7

                           Refused 9

2. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?   (34-35)

       a. Number of days . . . . __ __

       b. None 8 8

          Don't know/Not sure 7 7

          Refused 9 9

3. Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?   (36-37)

       a. Number of days . . . . __ __

       b. None   *If Q. 2 also "None," go to Q. 5 (p. 5)* 8 8

          Don't know/Not sure 7 7

          Refused 9 9

4. During the past 30 days, for about how many days did poor physical
or mental health keep you from doing your usual activities, such as
self-care, work, or recreation? (38-39)

    a. Number of days .... __ __

    b. None 8 8

        Don't know/Not sure 7 7

        Refused 9 9

Section 2: Health Care Access

5. Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?   (40)

      a. Yes *Go to Q. 7* 1

      b. No 2

      Don't know/Not sure *Go to Q. 7* 7

      Refused *Go to Q. 7* 9

6. About how long has it been since you had health care coverage?   (41)

Read Only if Necessary

      a. Within the past 6 months (1 to 6 months ago).............. 1

      b. Within the past year (6 to 12 months ago)................ 2

      c. Within the past 2 years (1 to 2 years ago) 3

      d. Within the past 5 years (2 to 5 years ago) 4

      e. 5 or more years ago 5

      Don't know/Not sure 7

      Never 8

      Refused 9

7. Was there a time during the last 12 months when you needed to see a doctor, but could not because of the cost?   (42)

      a. Yes 1

      b. No 2

      Don't know/Not sure 7

      Refused 9

8. About how long has it been since you last visited a doctor
   'for a routine checkup? (43)

Read Only if Necessary

a. Within the past year (1 to 12 months ago) 1

b. Within the past 2 years (1 to 2 years ago) 2

c. Within the past 5 years (2 to 5 years ago) 3

d. 5 or more years ago 4

Don't know/Not sure 7

Never 8

Refused 9

Section 3: Hypertension Awareness

9. About how long has it been since you last had your blood pressure
   taken by a doctor, nurse, or other health professional? (44)

Read Only if Necessary

    a. Within the past 6 months (1 to 6 months ago)............. 1

    b. Within the past year (6 to 12 months ago)................. 2

    c. Within the past 2 years (1 to 2 years ago)................. 3

    d. Within the past 5 years (2 to 5 years ago)................. 4

    e. 5 or more years ago 5

       Don't know/Not sure 7

       Never   *Go to Q. 12 (p. 8)* 8

       Refused.. 9

10. Have you ever been told by a doctor, nurse, or other health professional
    that you have high blood pressure? (45)

    a. Yes 1

    b. No   *Go to Q. 12 (p. 8)* 2

       Don't know/Not sure   *Go to Q. 12 (p. 8)* 7

       Refused   *Go to Q. 12 (p. 8)* 9

11. Have you been told on more than one occasion that your blood pressure
    was high, or have you been told this only once? (46)

    a. More than once 1

    b. Only once 2

       Don't know/Not sure 7

       Refused... 9

Section 4: Cholesterol Awareness

12. Blood cholesterol is a fatty substance found in the blood. Have you ever had your blood cholesterol checked? (47)

    a. Yes 1

    b. No   *Go to Q. 15 (p. 9)* 2

    Don't know/Not sure   *Go to Q. 15 (p. 9)* 7

    Refused   *Go to Q. 15 (p. 9)* 9

13. About how long has it been since you last had your blood cholesterol checked? (48)

Read Only if Necessary

    a. Within the past year (1 to 12 months ago)................ 1

    b. Within the past 2 years (1 to 2 years ago) 2

    c. Within the past 5 years (2 to 5 years ago) 3

    d. 5 or more years ago 4

    Don't know/Not sure 7

    Refused 9

14. Have you ever been told by a doctor or other health professional that your blood cholesterol is high? (49)

    a. Yes 1

    b. No 2

    Don't know/Not sure 7

    Refused 9

Section 5: Diabetes

15. Have you ever been told by a doctor that you have diabetes?   (50)

If "yes" and female, ask "Was this only when you were pregnant?"	a. Yes	1
	b. Yes, but female told only during pregnancy.................	2
	c. No	3
	Don't know/Not sure	7
	Refused	9

Section 6: Injury Control

16. How often do you use seatbelts when you drive or ride in a car?   (51)

    Would you say:

    Please Read

	a. Always	1
	b. Nearly Always	2
	c. Sometimes	3
	d. Seldom	4
	or	
	e. Never	5

Do not read these responses.	Don't know/Not sure	7
	Never drive or ride in a car	8
	Refused	9

17. What is the age of the oldest child in your household under the age of 16?   (52-53)

Code <1 yr. as "01"	a. Code age in years	_ _
	b. No children under age 16 *Go to Q. 20 (p. 12)*	8 8
	Don't know/Not sure *Go to Q. 20 (p. 12)*	7 7
	Refused *Go to Q. 20 (p. 12)*	9 9

18. How often does the *[fill in age from Q. 17]* -year-old child in your household use a . . .

     car safety seat *[for child under 5]*

     seatbelt *[for child 5 or older]*

     . . .when they ride in a car?

Would you say: *Please Read*   (54)

     a. Always 1

     b. Nearly always 2

     c. Sometimes 3

     d. Seldom 4
       or

     e. Never 5

Do not read these responses.

     Don't know/Not sure 7

     Never rides in a car 8

     Refused 9

⇨ **If oldest child is 5 years or older, continue with Q. 19. Otherwise, go to Q. 20 (p. 12).**

19. During the past year, how often has the *[fill in age from Q. 17]* -year-old child worn a bicycle helment when riding a bicycle?

Would you say: *Please Read*   (55)

     a. Always 1

     b. Nearly always 2

     c. Sometimes 3

     d. Seldom 4
       or

     e. Never 5

Do not read these responses.

     Don't know/Not sure 7

     Never rides a bicycle 8

     Refused 9

20. When was the last time you or someone else deliberately tested all of the smoke detectors in your home, either by pressing the test buttons or holding a source of smoke near them? (56)

Read Only if Necessary

a. Within the past month (0 to 1 month ago) 1

b. Within the past 6 months (1 to 6 months ago) 2

c. Within the past year (6 to 12 months ago) 3

d. One or more years ago 4

e. Never 5

f. No smoke detectors in home 6

   Don't know/Not sure 7

   Refused 9

Section 7: Tobacco Use

21. Have you smoked at least 100 cigarettes in your entire life? (57)

    5 packs = 100 cigarettes

    a. Yes 1

    b. No   *Go to Q. 27 (p. 15)* 2

    Don't know/Not sure *Go to Q. 27 (p. 15)* 7

    Refused *Go to Q. 27 (p. 15)* 9

22. Do you smoke cigarettes now? (58)

    a. Yes 1

    b. No *Go to Q. 26 (p. 14)* 2

    Refused *Go to Q. 27 (p. 15)* 9

23. On how many of the past 30 days did you smoke cigarettes? (59-60)

    a. Number of days *If less than 30, go to Q. 24a (p. 14)* ..... ___ ___

    b. None *Go to Q. 26 (p. 14)* 8 8

    Don't know/Not sure 7 7

    Refused 9 9

24. On the average, about how many cigarettes a day do you now smoke? (61-62)

    1 pack = 20 cigarettes

    Number of cigarettes *Go to Q. 25 (p. 14)* .... ___ ___

    Don't know/Not sure *Go to Q. 25 (p. 14)* 7 7

    Refused *Go to Q. 25 (p. 14)* 9 9

24a. On the average, when you smoked during the past 30 days, about how many cigarettes did you smoke a day? (63-64)

<table>
<tr><td rowspan="3">1 pack = 20 cigarettes</td><td>Number of cigarettes Go to Q. 27 (p. 15) . . . .</td><td>— —</td></tr>
<tr><td>Don't know/Not sure Go to Q. 27 (p. 15) . . . .</td><td>7 7</td></tr>
<tr><td>Refused Go to Q. 27 (p. 15) . . . .</td><td>9 9</td></tr>
</table>

25. During the past 12 months, have you quit smoking for 1 day or longer? (65)

    a. Yes *Go to Q. 27 (p. 15)* 1

    b. No *Go to Q. 27 (p. 15)* 2

    Don't know/Not sure *Go to Q. 27 (p. 15)* 7

    Refused *Go to Q. 27 (p. 15)* 9

26. About how long has it been since you last smoked cigarettes regularly, that is, daily? (66-67)

Read Only if Necessary

    a. Within the past month (0 to 1 month ago) 0 1

    b. Within the past 3 months (1 to 3 months ago) 0 2

    c. Within the past 6 months (3 to 6 months ago) 0 3

    d. Within the past year (6 to 12 months ago) 0 4

    e. Within the past 5 years (1 to 5 years ago) 0 5

    f. Within the past 15 years (5 to 15 years ago) 0 6

    g. 15 or more years ago 0 7

    Don't know/Not sure 7 7

    Never smoked regularly 8 8

    Refused 9 9

Section 8: Alcohol Consumption

27. During the past month, have you had at least one drink of any alcoholic beverage such as beer, wine, wine coolers, or liquor? (68)

    a. Yes 1

    b. No *Go to Q. 32 (p. 17)*............................... 2

    Don't know/Not sure *Go to Q. 32 (p. 17)* 7

    Refused *Go to Q. 32 (p. 17)* 9

28. During the past month, how many days per week or per month did you drink any alcoholic beverages, on the average? (69-71)

    a. Days per week .... 1 __ __

    b. Days per month.................................. 2 __ __

    Don't know/Not sure *Go to Q. 30* 7 7 7

    Refused *Go to Q. 30* 9 9 9

29. A drink is 1 can or bottle of beer, 1 glass of wine, 1 can or bottle of wine cooler, 1 cocktail, or 1 shot of liquor. On the days when you drank, about how many drinks did you drink on the average? (72-73)

    Number of drinks .... __ __

    Don't know/Not sure 7 7

    Refused 9 9

30. Considering all types of alcoholic beverages, how many times during the past month did you have 5 or more drinks on an occasion? (74–75)

    a. Number of times.................................. __ __

    b. None 8 8

    Don't know/Not sure 7 7

    Refused 9 9

31. During the past month, how many times have you driven when you've
    had perhaps too much to drink?   (76-77)

    a. Number of times . . . .   — —

    b. None 8 8

        Don't know/Not sure 7 7

        Refused 9 9

Section 9: Demographics

32. What is your age?   (78-79)

        Code age in years . . . .   _ _

        Don't know/Not sure 0 7

        Refused 0 9

33. What is your race?   (80)

    Would you say: *Please Read*

        a. White   1

        b. Black   2

        c. Asian, Pacific Islander   3

        d. American Indian, Alaska Native   4
           or
        e. Other: (specify) _____   5

Do not read these responses.
        Don't know/Not sure   7

        Refused   9

34. Are you of Spanish or Hispanic origin?   (81)

        a. Yes   1

        b. No   2

        Don't know/Not sure   7

        Refused   9

35. Are you: (82)

Please Read

   a. Married 1

   b. Divorced 2

   c. Widowed... 3

   d. Separated 4

   e. Never been married 5
      or
   f. A member of an unmarried couple 6

      Refused 9

36. How many children live in your household who are . . .

Please Read

Code 1–9
7 = 7 or more
8 = None
9 = Refused

   a. Less than 5 years old?................................. __ (83)

   b. 5 through 12 years old? .... __ (84)

   c. 13 through 17 years old? .... __ (85)

37. What is the highest grade or year of school you completed?   (86)

Read Only if Necessary

   a. Never attended school or kindergarten only 1

   b. Grades 1 through 8 (Elementary) 2

   c. Grades 9 through 11 (Some high school) 3

   d. Grade 12 or GED (High school graduate) 4

   e. College 1 year to 3 years (Some college or technical school) ... 5

   f. College 4 years or more (College graduate)................. 6

      Refused 9

38. Are you currently: (87)

Please Read

    a. Employed for wages 1

    b. Self-employed 2

    c. Out of work for more than 1 year 3

    d. Out of work for less than 1 year 4

    e. Homemaker 5

    f. Student 6

    g. Retired 7
       or

    h. Unable to work 8

       Refused 9

39. Is your annual household income from all sources: (88–89)

Please Read

If respondent refuses at any income level, code refused	a. Less than $25,000 *If "no," ask e; if "yes'" ask b* ($20,000 to less than $25,000)	0 4
	b. Less than $20,000 *If "no," code a; if "yes'" ask c* ($15,000 to less than $20,000)	0 3
	c. Less than $15,000 *If "no," code b; if "yes'" ask d* ($10,000 to less than $15,000)	0 2
	d. Less than $10,000 *If "no," code c*	0 1
	e. Less than $35,000 *If "no," ask f* ($25,000 to less than $35,000)	0 5
	f. Less than $50,000 *If "no," ask g* ($35,000 to less than $50,000)	0 6
	g. Less than $75,000 *If "no," code h* ($50,000 to less than $75,000)	0 7
	h. $75,000 or more	0 8
Do not read these responses.	Don't know/Not sure	7 7
	Refused	9 9

40. About how much do you weigh without shoes? (90–92)

| Round fractions up | Weight .... | _ _ _ |
| | | pounds |

Don't know/Not sure 7 7 7

Refused 9 9 9

41. About how tall are you without shoes? (93-95)

| Round fractions down | Height .... | _ / _ _ |
| | | ft / inches |

Don't know/Not sure 7 7 7

Refused 9 9 9

42. What county do you live in? (96-98)

FIPS county code .... _ _ _

Don't know/Not sure 7 7 7

Refused 9 9 9

43. Do you have more than one telephone number in your household? (99)

a. Yes 1

b. No *Go to Q. 45* 2

Refused *Go to Q. 45* 9

44. How many residential telephone numbers do you have? (100)

Total telephone numbers *[8 = 8 or more]* .... _

Refused 9

Now I have some questions about other health services you may have received.

45. Indicate sex of respondent. (101)

Ask Only if Necessary

Male *Go to Q. 58 (p. 25)* 1

Female 2

Section 10: Women's Health

46. A mammogram is an x-ray of each breast to look for breast cancer.
    Have you ever had a mammogram?   (102)

        a. Yes 1

        b. No *Go to Q. 50 (p. 22)* 2

            Don't know/Not sure *Go to Q. 50 (p. 22)* 7

            Refused *Go to Q. 50 (p. 22)* 9

47. How long has it been since you had your last mammogram?   (103)

Read Only if Necessary

        a. Within the past year (1 to 12 months ago). 1

        b. Within the past 2 years (1 to 2 years ago) 2

        c. Within the past 3 years (2 to 3 years ago) 3

        d. Within the past 5 years (3 to 5 years ago) 4

        e. 5 or more years ago *Go to Q. 49 (p. 22)* 5

            Don't know/Not sure 7

            Refused 9

48. About how many mammograms have you had in the last five years?   (104-105)

            Number of mammograms. . . . . __ __

            None 8 8

            Don't know/Not sure 7 7

            Refused 9 9

49. Was your last mammogram done as part of a routine checkup, because of a breast problem other than cancer, or because you've already had breast cancer? (106)

    a. Routine checkup 1

    b. Breast problem other than cancer 2

    c. Had breast cancer 3

    Don't know/Not sure 7

    Refused 9

50. A clinical breast exam is when a doctor, nurse, or other health professional feels the breast for lumps. Have you ever had a clinical breast exam? (107)

    a. Yes 1

    b. No *Go to Q. 53 (p. 23)* 2

    Don't know/Not sure *Go to Q. 53 (p. 23)* 7

    Refused *Go to Q. 53 (p. 23)* 9

51. How long has it been since your last breast exam? (108)

Read Only if Necessary

    a. Within the past year (1 to 12 months ago). 1

    b. Within the past 2 years (1 to 2 years ago) 2

    c. Within the past 3 years (2 to 3 years ago) 3

    d. Within the past 5 years (3 to 5 years ago) 4

    e. 5 or more years ago 5

    Don't know/Not sure 7

    Refused 9

52. Was your last breast exam done as part of a routine checkup, because of a breast problem other than cancer, or because you've already had breast cancer? (109)

    a. Routine Checkup 1

    b. Breast problem other than cancer 2

    c. Had breast cancer 3

       Don't know/Not sure 7

       Refused 9

53. A Pap smear is a test for cancer of the cervix. Have you ever had a Pap smear? (110)

    a. Yes 1

    b. No   *Go to Q. 56 (p. 24)* 2

       Don't know/Not sure   *Go to Q. 56 (p. 24)* 7

       Refused Go to   *Go to Q. 56 (p. 24)* 9

54. How long has it been since you had your last Pap smear? (111)

Read Only if Necessary

    a. Within the past year (1 to 12 months ago)................. 1

    b. Within the past 2 years (1 to 2 years ago) 2

    c. Within the past 3 years (2 to 3 years ago) 3

    d. Within the past 5 years (3 to 5 years ago) 4

    e. 5 or more years ago 5

       Don't know/Not sure 7

       Refused 9

55. Was your last Pap smear done as part of a routine exam, or to check
    'a current or previous problem?   (112)

      a. Routine exam 1

      b. Check current or previous problem 2

         Other....................................... 3

         Don't know/Not sure 7

         Refused....................................... 9

56. Have you had a hysterectomy?   (113)

A hysterectomy is an operation to remove the uterus (womb)
  a. Yes *Go to Q. 58 (p. 25)* 1

  b. No.. 2

      Don't know/Not sure 7

      Refused....................................... 9

> ⇨ | **If respondent 45 years old or older, go to Q. 58 (p. 25).**

57. To your knowledge, are you now pregnant?   (114)

      a. Yes 1

      b. No.. 2

         Don't know/Not sure 7

         Refused....................................... 9

Section 11: Immunization

58. During the past 12 months, have you had a flu shot?   (115)

        a. Yes 1

        b. No 2

            Don't know/Not sure 7

            Refused 9

59. Have you ever had a pneumonia vaccination?   (116)

        a. Yes 1

        b. No 2

            Don't know/Not sure 7

            Refused 9

Section 12: Colorectal Cancer Screening

60. A digital rectal exam is when a doctor or other health professional inserts a finger in the rectum to check for cancer and other health problems. Have you ever had this exam?   (117)

    a. Yes 1

    b. No   *Go to Q. 62* 2

    Don't know/Not sure   *Go to Q. 62* 7

    Refused   *Go to Q. 62* 9

61. When did you have your last digital rectal exam?   (118)

Read Only if Necessary

    a. Within the past year (1 to 12 months ago)................. 1

    b. Within the past 2 years (1 to 2 years ago) 2

    c. Within the past 5 years (2 to 5 years ago) 3

    d. 5 or more years ago 4

    Don't know/Not sure 7

    Refused 9

62. A proctoscopic exam is when a tube is inserted in the rectum to check for cancer and other health problems. Have you ever had this exam?   (119)

    a. Yes 1

    b. No   *Go to Section 13: HIV/AIDS (p. 28)* 2

    Don't know/Not sure   *Go to Section 13: HIV/AIDS (p. 28)* .. 7

    Refused   *Go to Section 13: HIV/AIDS (p. 28)* 9

63. When did you have your last proctoscopic exam? (120)

Read Only if Necessary

a. Within the past year (1 to 12 months ago)................... 1

b. Within the past 2 years (1 to 2 years ago)................... 2

c. Within the past 5 years (2 to 5 years ago)................. 3

d. 5 or more years ago 4

Don't know/Not sure 7

Refused... 9

Section 13: AIDS Knowledge and Testing

▷ | If respondent is 65 years old or older, go to Closing Statement.

The next few questions are about the national health problem of HIV, the virus that causes AIDS. Please remember that your answers are strictly confidential and that you don't have to answer every question if you don't want to.

64. If you had a child in school, at what grade do you think he or she should begin receiving education in school about HIV infection and AIDS?   (121-122)

    Code 01 | a. Grade ....   — —
    through 12 |

          b. Kindergarten 5 5

          c. Never 8 8

              Don't know/Not sure 7 7

              Refused 9 9

65. If you had a teenager who was sexually active, would you encourage him or her to use a condom?   (123)

          a. Yes   1

          b. No   2

              Would give other advice   3

              Don't know/Not sure   7

              Refused   9

66. What are your chances of getting infected with HIV, the virus that causes AIDS ? (124)

Would you say: *Please Read*

    a. High 1

    b. Medium.. 2

    c. Low... 3
    or
    d. None 4

Do not read these responses.

    Not applicable *Go to Q. 68 (p. 30)* 5

    Don't know/Not sure 7

    Refused 9

67. Have you ever had your blood tested for HIV? (125)

    a. Yes *Go to Q. 68 (p. 30)* 1

    b. No 2

    Don't know/Not sure 7

    Refused 9

68a. Have you donated blood since March 1985? (126)

    a. Yes 1

    b. No *Go to Q. 73 (p. 32)* 2

    Don't know/Not sure *Go to Q. 73 (p. 32)* 7

    Refused *Go to Q. 73 (p. 32)* 9

69a. When did you last donate blood? (127-130)

    Code month and year *Go to Q. 73 (p. 32)* .... __ __/__ __

    Don't know/Not sure *Go to Q. 73 (p. 32)* 7 7 7 7

    Refused *Go to Q. 73 (p. 32)* 9 9 9 9

68. When was your last blood test for HIV? (131-134)

Code month and year .... __ __/__ __

Don't know/Not sure 7 7 7 7

Refused 9 9 9 9

69. What was the main reason you had your last blood test for HIV? (135-136)

Reason code .... __ __

Read Only if Necessary

a. For hospitalization or surgical procedure 01

b. To apply for health insurance 02

c. To apply for life insurance 03

d. For employment 04

e. To apply for a marriage license 05

f. For military induction or military service................. 06

g. For immigration 07

h. Just to find out if you were infected 08

i. Because of referral by a doctor......................... 09

j. Because of pregnancy................................. 10

k. Referred by your sex partner 11

l. Because it was part of a blood donation process 12

m. For routine checkup 13

n. Because of occupational exposure 14

o. Because of illness 15

p. Other.. 87

Don't know/Not sure 77

Refused 99

70. Where did you have your last blood test for HIV?   (137-138)

Facility Code. . . . .   __ __

Read Only if Necessary

a.	Private doctor, HMO	01
b.	Blood bank, plasma center, Red Cross	02
c.	Health department.	03
d.	AIDS clinic, counseling, testing site	04
e.	Hospital, emergency room, outpatient clinic	05
f.	Family planning clinic	06
g.	Prenatal clinic	07
h.	Tuberculosis clinic	08
i.	STD clinic.	09
j.	Community health clinic	10
k.	Clinic run by employer	11
l.	Insurance company clinic	12
m.	Other public clinic	13
n.	Drug treatment facility	14
o.	Military induction or military service site	15
p.	Immigration site	16
q.	At home, home visit by nurse or health worker	17
r.	At home, using self-testing kit	18
s.	Other.	87
	Don't know/Not sure	77
	Refused	99

71. Did you receive the results of your last test?   (139)

        a. Yes 1

        b. No *Go to Q. 73* 2

        Don't know/Not sure *Go to Q. 73* 7

        Refused *Go to Q. 73* 9

72. Did you receive counseling or talk with a health care professional about the results of your test?   (140)

        a. Yes 1

        b. No 2

        Don't know/Not sure 7

        Refused 9

73. Some people use condoms to keep from getting infected with HIV through sexual activity. How effective do you think a properly used condom is for this purpose?   (141)

    Would you say: *Please Read*

        a. Very effective 1

        b. Somewhat effective 2
           or
        c. Not at all effective 3

Do not read these responses.

        Don't know how effective 4

        Don't know method 5

        Refused 9

74. Due to what you know about HIV, have you changed your sexual behavior
   'in the last 12 months?   (142)

      a. Yes   1

      b. No   *Go to Closing Statement*   2

        Don't know/Not sure   *Go to Closing Statement*   7

        Refused   *Go to Closing Statement*   9

75. Have you:

Please Read	Yes	No	Dk/Ns	Ref	
a. Had sexual intercourse with only one partner?	1	2	7	9	(143)
b. Used condoms for protection?	1	2	7	9	(144)
c. Been more careful in selecting sexual partners?	1	2	7	9	(145)

Closing Statement

That's my last question. Everyone's answers will be combined to give us
information about the health practices of people in this state. Thank you
very much for your time and cooperation.

or

Transition to Modules or State-added Questions, or both

Finally, I have just a few questions left about some other health topics.

APPENDIX C

**Demographic Information
on USAF Total Population,
Survey Sample,
and Survey Respondents**

Table 1. Demographic breakdown of entire ADAF population (as of July 1995)

MAJCOM	Males			Females			Total
	E1-E4	E5-E9	O1-O10	E1-E4	E5-E9	O1-O10	
ACC	38645	41813	13499	8780	5083	1996	109816
AETC	22431	17870	11541	7289	2727	2609	64467
AFMC	9168	11886	9260	2612	1782	1730	36438
AF SPAC	7974	8207	4121	1679	851	620	23452
AFSOC	3016	3944	1329	488	327	78	9202
AMC	18542	19921	7597	4406	2597	1680	54743
PACAF	11724	14064	3431	2623	1767	735	34344
USAFE	9709	11989	2800	2124	1714	665	29001
Total	**121209**	**129694**	**53578**	**30001**	**16868**	**10113**	**361463**

Table 2. Demographic breakdown of sample

MAJCOM	Males			Females			Total
	E1-E4	E5-E9	O1-O10	E1-E4	E5-E9	O1-O10	
ACC	141	102	86	149	166	90	734
AETC	91	110	75	91	66	106	539
AFMC	92	129	92	36	41	75	465
AF SPAC	142	153	71	23	15	22	426
AFSOC	145	187	53	14	11	3	413
AMC	111	136	61	65	67	69	509
PACAF	127	158	36	36	40	26	423
USAFE	127	165	32	33	41	23	421
Total	**976**	**1140**	**506**	**447**	**447**	**414**	**3930**

Table 3. Final numbers of completed interviews

MAJCOM	Males			Females			Total
	E1-E4	E5-E9	O1-O10	E1-E4	E5-E9	O1-O10	
ACC	73	48	43	85	87	47	383
AETC	56	55	37	58	39	51	296
AFMC	48	49	43	15	24	31	210
AF SPAC	80	75	32	11	9	13	220
AFSOC	77	97	30	7	7	1	219
AMC	50	65	20	30	35	28	228
PACAF	79	86	18	18	23	10	234
USAFE	40	56	13	11	13	8	141
Total	**503**	**531**	**236**	**235**	**237**	**189**	**1931**

APPENDIX D

Abbreviations Used in Report

APPENDIX D

Abbreviations Used in Report

Abbreviation	Definition
CDC	Centers for Disease Control and Prevention
BRFSS	Behavioral Risk Factor Surveillance System
MAJCOM	Major Command
HQ AFMPC	Headquarters, Air Force Military Personnel Center
TDY	Temporary Duty
CONUS	Continental United States
USAF	United States Air Force
ADAF	Active Duty Air Force
ACC	Air Combat Command
AFMC	Air Force Materiel Command
AMC	Air Mobility Command
AF SPACECOM	Air Force Space Command
AFSOC	Air Force Special Operations Command
PACAF	Pacific Air Forces
USAFE	United States Air Forces in Europe
AETC	Air Education and Training Command